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Individual Differences in the use of Behavioural Regulation: Differentiating the Influence of Future-Orientation and Personality Traits on the Perception of Well-Being

by

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I certify that this is a true and accurate version of the thesis approved by the examiners, and that all relevant ordinance regulations have been fulfilled

Signed Supervisor: ……..…….. Date: …….

Declaration

I, Catherine D. Engelbrecht, hereby declare that this thesis is my own original work and has not been submitted elsewhere in fulfilment of the requirement of any other award. Where information has been derived from other sources, I can confirm that this has been indicated in the thesis.

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Abstract

Within the psychological literature two main approaches can be identified as influential factors in the increase of well-being, defined in this thesis as Hedonic (SWB) vs. Eudaimonic Well-Being (PWB). One of the key qualities of the human mind is its ability to think about and act upon the future. The first approach emphasises the role of psychological strengths related to the utilisation of foresight and planning in such a way as to influence the consequences of current actions. The second approach focuses on the function of basic personality traits in the setting of goals and mental functioning. To integrate these approaches, this thesis brings together two lines of research: future-orientation and personality traits. Two longitudinal studies investigate the predictive qualities of future-orientated constructs in relation to personality traits, while also focusing on their contribution to the setting and attainment of goals and the perception of well-being.

In the first study two cognitive-motivational scales, Hope and Personal Growth Initiative (PGI), were administered to measure two hundred and sixty four participants' future-orientation. The first aim of this study was to examine the distinctiveness of these two scales in predicting well-being. Results from factor analyses cast doubt on the uniqueness of Hope and PGI, while regression analyses demonstrate Hope to be the strongest, most significant predictor of PWB and SWB. A further aim of the study was to ascertain if future-orientation could account for additional variance in the prediction of well-being, after the influence of the Eysenck's Personality traits have been controlled for. It was indicated that individuals' Hope levels do account for residual variance in PWB and SWB. The last aim of the study was to determine if future-orientation could contribute to long-term

goal attainment and well-being. The results indicate that participant's Hope levels did not significantly contribute to long-term goal attainment, however it had a direct, significant effect on long-term PWB.

The second study, utilising 117 participants, replicated prior findings that demonstrate Hope, instead of PGI, to be the strongest, most significant predictor of both PWB and SWB. The study also extents prior research by utilising the Big-Five traits in the prediction of PWB and SWB. Factor analyses results indicate Hope to share an underlying factor structure with Openness and Conscientiousness, while PGI share an underlying factor structure with Agreeableness. It was further indicated that participants' Hope, but not PGI, accounts for residual variance in the prediction of PWB, after controlling for the Big-Five traits. Conversely, Hope and PGI did not account for any residual variance in the prediction of SWB, instead almost 60% of the variance can be attributed to the Big-Five personality traits. Extending the first study, the aim of the second study was to ascertain attainment through independent verification and not participant self-assessment. The results indicate that participants who demonstrate greater levels of Openness and PGI tend to set higher quantitative goals. Although not predictive of goal attainment, participants with greater Openness showed higher performance on the goals.

Overall, the results question the distinctiveness of Hope and PGI in the prediction of well-being. It adds to our knowledge of how psychological strengths such as future-orientation can contribute variance to the prediction of well-being after basic personality traits have been controlled for. Finally the results also add to our understanding of how personality traits, as well as, Hope and PGI independently contribute to the setting of goals.

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List of Abbreviations and Symbols

β	Beta
BCE	Before the Common Era
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CI	Confidence Interval
EFA	Exploratory Factor Analysis
e.g.	For Example
EMI	Exercise Motivation Inventory
EPQ-R	Eysenck Personality Questionnaire-Revised
df	Degrees of Freedom
FET	Fisher Exact Test
FFT	Five-Factor Theory
g	Standard factor with the Outlier Labelling Rule
i.e.	That Is
KMO	Kaiser-Meyer-Olkin
M	Mean
N	Sample Size
NNFI	Non-Normed Index
ONS	Office for National Statistics
ρ	Probability
PCA	Principal Component Matrix
PERMA	Well-Being Model
PGI	Personal Growth Initiative

PGIS	Personal Growth Initiative Scale
PWB	Psychological Well-Being
PWBS	Psychological Well-Being Scale
SD	Standard Deviation
SDT	Self-Determination Theory
SES	Socio-Economic Status
SONA	Cloud-Based Participant Management Software
SPANE	Scale of Positive and Negative Experiences
SPSS	Statistical Package for Social Sciences
SWB	Subjective Well-Being
SWL	Satisfaction with Life
SWLS	Satisfaction with Life Scale
RMSEA	Root Mean Square Error of Approximation
χ^2	Chi-Square
UIN	Unique Identification Number
UK	United Kingdom
VIF	Variance Inflation Factor

Chapter 1

GENERAL OVERVIEW AND STRUCTURE OF DISSERTATION

"Plan for the future, because that is where you are going to spend the rest of your life"
-Mark Twain

1.1. General Overview

The World Health Organization (2011) defines mental health as “a state of wellbeing in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community” (para. 1). Although psychological well-being can be defined as the lack of symptoms of distress (i.e., lack of depression, anxiety, and other symptoms of mental disorders), well-being has become increasingly recognised as more than just the lack of distress (Keyes & Magyar-Moe, 2003). The aim of recent models related to positive functioning has been to identify, cultivate, and enhance an individual’s capabilities and strengths with the aim of increasing well-being, as well as protecting against symptoms of distress (Office of the Surgeon General, 1999).

Within personality and individual differences research there are two streams of investigation attempting to identify factors that contribute to the prediction of mental health. The first relates to basic personality traits and the second view pertains to characteristic adaptations. The current thesis thus brings together two lines of research: positive psychology and personality psychology. This introductory chapter will endeavour to briefly distinguish between personality traits and characteristic

adaptations with a specific focus on their relationships with mental health. Furthermore, future-orientation will be introduced as a possible characteristic adaptation that might influence individuals' well-being. However, we begin this chapter with a discussion on dispositional traits.

Personality traits are usually considered to be relatively stable, biologically based, and resistant to external social input (Caspi, Roberts, & Shiner, 2005; McCrae & Costa, 2008; McCrae et al., 2000). Previous research has indicated traits to be important predictors of various outcomes, including a variety of health risk behaviours (Trobst, Herbst, Masters, & Costa, 2002; Terracciano & Costa, 2004), marital satisfaction and stability (Kelly & Conley, 1987), emotional experience (Terracciano, McCrae, & Costa, 2003), and well-being (Costa & McCrae, 1980; Steel, Schmidt, & Shultz, 2008). In comparison to other constructs such as age, income, and education, personality traits have a much greater influence on subjective well-being (Costa & McCrae, 1984). Similarly, findings by Ryff and colleagues (Keyes, Shmotkin, & Ryff, 2002; Schmutte & Ryff, 1997) also indicate the strong association between personality traits and psychological well-being.

McCrae recently (2011) suggested that since personality traits are stable their effect on well-being is also stable and as such well-being is fixed. Given that it is the aim of positive psychology to enhance positive mental functioning (Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001), the statement by McCrae might be perceived as a barrier to success. In fact some positive psychologists acknowledge this challenge (Lyubomirsky, Sheldon, & Schkade, 2005). That being said, recent empirical work has brought this into question. Not only has there been noted variability and change in the traits themselves (Piedmont, 2001; Terracciano Costa, & McCrae, 2006), at least a third of well-being at any given time is not related to

personality traits (Steel, Schmidt, & Shultz, 2008). Although McCrae (2011) acknowledges the possibility for some change in traits, there is uncertainty as to how these changes occur, how much change occurs, and the duration of these changes. Nonetheless, within the Five Factor Theory, personality traits are entirely based on biology (McCrae, 2011). That is, similar traits containing similar structures (e.g. higher order traits and facets) are found in various cultures (McCrae et al., 2005). These traits are not influenced by shared environments (Bouchard & Loehlin, 2001), they have a high degree of stability in adulthood (Terracciano, Costa, & McCrae, 2006), and past events seem to have very little impact on traits that are enduring (Terracciano et al., 2005). Due to the robustness of these findings McCrae (2011) went so far as to suggest that traits themselves are not easily amenable to psychological interventions. If personality only consisted of traits there would be no other option but to attempt a change of traits. Personality, however, is a far more complex entity and as such most positive psychological research focuses on the identification and change of characteristic adaptations[1].

Due to the stability of traits and their resistance to change, enhancing well-being through interventions aimed at traits seems improbable (McCrae, 2011). A far more promising approach is to identify and change human strengths (Mascaro & Rosen, 2005) or what McCrae (2011) refers to as characteristic adaptations. While personality traits refer to basic tendencies, characteristic adaptations place emphasis on motivational aspects such as attitudes, roles, goals, relationships, and habits (McAdams & Pals, 2006). It is believed that individuals are self-regulating and as

[1] Characteristic adaptations can be defined as habits, goals, attitudes, roles, values, possible selves, projects, and other features of personality that captures individual differences in motivation.

such can manage their lives through the change or utilisation of their strengths or characteristic adaptations.

Within the scientific study of human strengths there is an attempt to obtain an understanding of how the strengths displayed by the “average person” can result in increased thriving and success (Sheldon & King, 2001). With a focus on individuals’ potential, motives, and capabilities, research in positive psychology focuses on the development of interventions that increase well-being and decrease discomfort (Seligman, Steen, Park, & Peterson, 2005). This has been supported by one of the worlds’ leading personality researchers, Robert McCrae (2011). He suggested rather than focusing on personality traits as agents of change, attempts to increase psychological functioning should focus on changing the habits, goals, and attitudes that also guide behaviour and experiences.

Various psychological areas, including psychotherapy and positive psychology, have implemented this idea. For instance, in a recovery-oriented approach mostly utilised in psychiatric hospitals, instead of focusing on the belief that individuals with mental illnesses will suffer lifelong problems, individuals are encouraged to rely on self-determination and strengths in their attempts to overcome obstacles. Such therapeutic treatments focus on moving beyond the acceptance of these symptoms of distress, instead focusing on already existing skills or skills that can be developed in order to increase well-being (Office of the Surgeon General, 1999). Similarly, Harkness and McNulty (2002) advised clinicians to assist their clients/patients in the development of new characteristic adaptations that are in accordance with their personality, but are a more effective response to their life circumstances. Integrating this approach to mental health into treatment plans would theoretically help individuals dealing with mental illness move from a state of

surviving to a state of thriving. Many positive psychologists have used a similar approach. For example, in their attempts to define that which might increase happiness Lyubomirsky, Sheldon, and Schkade (2005) suggest a change of intentional activities that can be cognitive, behavioural, and volitional. In the short term these changes would only affect behaviour. But, when sustained over longer periods of time this might induce the adoption of new cognitions, patterns of behaviour, goals, and plans, in essence new characteristic adaptations. For this strategy to be viable the right characteristic adaptations (which will vary across individuals) need to be identified and developed. One such characteristic is the human mind's ability to think about and act upon the future.

Individuals tend to think about what is likely to happen in the future. They have aims and preferences, put a great deal of effort into the realisation of these aims and preferences, and may even have regrets when the future does not turn out the way they had hoped (Seginer, 2009). To be oriented towards the future requires the utilisation of an extensive array of psychological resources. These include motivational processes such as values, interests, and goals, as well as cognitive processes such as the regulation of behaviour, planning, and anticipation. Similarly, individuals also experience emotional processes that include hope, despair, pessimism, and optimism. In using these skills we try to anticipate the future and the impact it might have on us and those close to us. When deciding on current actions several aspects are considered including the expected consequences, the short versus long term payoff, various standards, and the expected aims (Bruininks & Malle, 2005).

Although multiple approaches enrich the research of any area within psychology, they also unintentionally lead to the use of diversified terminology and

various methods of assessment. For the purpose of this thesis the term that will be used to describe the construction of mental images related to a desired future is future-orientation, which refers to “subjective images individuals construct about the future” (Seginer, 2009, p. viii). Over the last few decades, researchers have proposed several constructs in the conceptualisation and measurement of future-orientation. Two such constructs are Hope and Personal Growth Initiative (PGI; Robitschek, 1998). Although some define Hope as a multidimensional resource for adaptive coping (Herth, 1991), others simply define Hope as the belief that a positive future is possible (Dufault & Martacchio, 1985). Regardless of the definition used, the majority of the definitions include a temporal component, usually referring to the future. The most comprehensive definition, however, has been provided by Snyder (1995) who views Hope as a cognitive process in which goals are identified and pursued. Hope (Snyder, 2002) represents a person's tendency to realise the areas in which change is needed, resulting in the construction of routes that facilitate this change, while having the agency to constantly utilise the routes and maintain movement towards the objective. Similarly, Personal Growth Initiative has recently (Robitschek et al., 2012) been proposed as a multifaceted quality that consists of cognitive and behavioural dimensions related to the intentional and active desire to engage in personal growth across various life domains. As such, PGI (Robitschek et al., 2012) is suggestive of individuals’ readiness for development, their capacity to engage in purposeful thinking, intentional behaviour, and utilisation of resources. Inherent in both of approaches is the ability to utilise one of the most basic behavioural regulation methods, goal setting, in order to enhance positive mental functioning. When individuals are actively engaging in future thinking and behaviour related to the future they make the future more amenable and aim to actualise

certain expectations, experiences, and options (Seginer, 2009). Through anticipation of the future and aiming at a particular future one can predict one's own development and direct it. Central to future-orientation is the construction of goals which represents individuals' desired outcomes (Austin & Vancouver, 1996). Due to goals ability to direct attention, mobilise effort, prolong persistence, and assist in the development of new learning strategies (Locke & Latham, 1985; 1990) they are vital to the increase of performance and well-being. This is due to the positive emotions experienced when progress is made or goals are attained (Diener, Suh, Lucas & Smith, 1999). Similarly, an increase in well-being can result in the development of more self concordant goals, which in turn creates more opportunities for attainment (Sheldon & Houser-Marko, 2001).

1.2. Purpose of the Study

In light of the evidence presented in this chapter the aim of the current thesis is threefold. The studies presented in this thesis were designed to firstly explore the relationship between Hope and PGI. A facet of well-being that has yet to be examined within the context of future-orientation is that of Hope and PGI. Seeking to distinguish these constructs the studies will examine their ability to predict hedonic and eudaimonic well-being. Central to both Hope and PGI is the idea that in the pursuit of one's aims changes can be made and well-being can be improved. Research aimed at determining hedonic and eudaimonic well-being and their relationship with either Hope or PGI is limited. Furthermore, considering the similarities between Hope and PGI, little research has been conducted with the aim of differentiating between these two constructs. This thesis will thus endeavour to fill this gap in the literature.

The second purpose of the studies is to measure the propensity of individuals to set goals and attain those goals. The studies were designed to explore if differing Hope and PGI levels are indeed related to goal attainment and an increase in well-being. Even though both Hope and PGI require the identification of goals and the realisation of these goals in order for change to take place, to the researcher's knowledge there is no published research detailing the relationship between PGI and goal setting, and very little research on Hope's influence on the achievement of goals. Since future-orientation is related to effort aimed at changing the future through the setting of goals in order to increase well-being, the second research question that arises is whether setting goals and attaining the goals can increase individuals' sense of well-being.

Thirdly, the studies aim to determine if Hope and PGI contribute to the prediction of outcome variables, such as well-being, even after personality traits have been controlled for. With evidence suggesting that personality traits and their effect on well-being is fairly stable and immutable to intervention (McCrae, 2011), the current thesis aims to investigate future-orientation as an alternative to increase well-being. Hope and PGI's independence from personality traits will be examined in terms of the amount of residual variance that these future-oriented constructs can account for in the prediction of hedonic and eudaimonic well-being.

1.3. Dissertation Structure

Through two longitudinal studies this thesis will investigate the relationship between two adaptations, Hope and PGI, the independence of these human strengths from personality traits, and the extent to which future-orientation and

personality traits contribute to the setting and attainment of goals which is aimed at facilitating change. The outline of the thesis is as follows:

1.3.1. Literature Review

Chapter 2: Examines key theories relevant to the studies presented in this thesis. The first section focuses on an introduction to personality traits, their stability, and their influence on well-being. The second section defines future-orientation and discusses Hope and Personal Growth Initiative. This is followed by a review of personal goals and the goal pursuit process, as well as, a discussion on how goals might be influenced by personality factors. The final section presents a discussion on the different well-being perspectives, with a distinction made between hedonic and eudaimonic well-being.

1.3.2. Experimental Studies

Chapter 3: Describes the results of a longitudinal study investigating the relationship between Hope and PGI, how these constructs relate to goal setting. The influence self-assessed goal attainment has on well-being will also be a focused in this chapter. Furthermore, a distinction is made between the influence of future-orientation and the Big-Three personality traits identified by Eysenck.

Chapter 4: Builds on the findings from Chapter 3, in that it includes the Big-Five personality traits and quantifiable goals. This chapter discusses the analysis and results of an investigation into the future-oriented construct's relationship with the Big-Five personality traits and the future-oriented construct's ability to account for residual variance not accounted for by traits. This study expands on findings from

Chapter 3, by determining Hope and PGI's effect on the attainment of quantifiable goals. However, in contrast to the study in Chapter 3, where participants indicated their own goal attainment, this study aims to determine goal attainment through independent verification.

1.3.3. General Discussion

Finally, a discussion chapter will summarise the findings in light of the future-orientation and personality literature in order to gain an understanding of how human strengths such as Hope or PGI can contribute to the understanding of well-being and goal attainment, after the contribution of traits are accounted for.

Chapter 2

LITERATURE REVIEW

2.1. PERSONALITY

"Happiness is not so much a matter of what we have or what we do; it is a matter of who we are" (McCrae, 2011, p. 193). Personality traits strongly influence psychological well-being and due to their heritability seem to be stable over long periods of time. Recent research supports both of these generalisations (Riemann, Angleitner, & Strelau, 1997; Roberts & DelVecchio, 2000; Steel, Schmidt, & Shultz, 2008). In light of this, it would seem that long-term well-being is also stable and that any attempts to enhance it would be futile. Is it that some are born to be happy while others are destined to live an unhappy life? A review of the literature indicates that it is unreasonable to assume trait stability is automatically associated with an unchangeable future. Some even suggest (McCrae, 2011) that the stability associated with traits is a desirable aspect in the enhancement of well-being.

In the subsequent section there will be a review of evidence that will assist in the understanding of personality's continuity and the possibility of change or lack thereof. The section also aims to provide the reader with an understanding of personality, in particular personality traits. The distinction between traits and characteristic adaptations will also be clarified. However, the first focus in this section will be to present the reader with an overview of various personality theories with a specific focus on the Big-Three and the Big-Five theories.

2.1.1. Higher-order factors: the ‘Big Five’ or the ‘Gigantic Three’?

McAdams and Olson (2010) define dispositional traits as “broad, internal, and comparative features of psychological individuality that account for consistencies in behaviour, thought, and feeling across situations and over time” (p. 519). Through the use of self-report measures these traits are used to describe the dimensions on which individuals tend to differ. With the 20th century coming to a close, one of the most widely accepted and comprehensive theories on personality traits was identified as “the Big-Five” otherwise known as the Five-Factor Theory (FFT). This theory is based on accumulated data from the last half century and is structured into a broad theoretical perspective to provide a comprehensive five-factor theory (Costa & McCrae, 2009). This model came into being as a result of repeated factor analytical studies and constitutes five broad factors: extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness. Besides these five higher-order traits, each also encompasses a range of lower-order traits, or what McCrae and Costa (2008) refer to as facets. For example, extraversion can include dimensions of assertiveness, positive emotionality, excitement seeking, warmth, activity, and gregariousness. Although there is increasing consensus about the structure of the higher-order, broad personality traits, there is still some disagreement about the lower order traits that are subsumed within the broad traits (John & Srivastava, 1999).

The first two factors that constitute the Five-Factor model, extraversion and neuroticism, have been respectively associated with positive emotionality and negative emotionality. These two traits have been similarly articulated in what is now known as the Big-Three model, the PEN system, or the Gigantic Three (Clark & Watson, 2008; Matthews, Deary, & Whiteman, 2003). The Big-Three model of

personality was developed by Hans Jürgen Eysenck (1992; 1994) utilising factor analytical methods and describes personality with three broad dimensions, Psychoticism (P), Extraversion (E), and Neuroticism (N). An Extravert is someone who scores high on the introversion-extraversion scale and tends to be sociable, fond of practical jokes, takes chances, craves excitement, and can be unreliable and easily lose his or her temper. Eysenck and Eysenck (1991) also characterise an introvert as someone who is serious, reliable, retiring, quiet, fond of books rather than people, who closely controls feelings, and has high ethical standards. Those who score high on Neuroticism tend to experience depression, worries, and anxiety, and allow their emotions to influence their judgement. They are prone to sleep and psychosomatic disorders and constantly worry that things will go wrong. Individuals who are low in Neuroticism are unworried and calm, and tend to recover rather quickly from an emotional upset. Psychoticism (P) refers to the tendency to act in an over-controlled manner instead of an under-controlled manner. According to Eysenck and Eysenck (1991) high scorers on this trait are unempathetic, solitary, aggressive, sometimes cruel, often troublesome, and can have unusual tastes. Similarly to the Big-Five Eysenck's three dimensions also have lower-level traits as displayed in Table 2.1. Eysenck has argued (1991) that his Giant Three factors are in fact situated above the Big-Five on a hierarchal level and that Agreeableness and Conscientiousness are facets of Psychoticism. In response to this Goldberg and Rosolack (1994) argue that they could not find an instance during their research where the PEN model was indicated as the higher-order super factors as described by Eysenck. Instead it can be concluded that Extraversion and Neuroticism as defined by Eysenck are similar to their corresponding traits in the Big-Five model and that Psychoticism is a blend of both Agreeableness and Conscientiousness.

Table 2.1. *The three dimensions of Eysenck's model of personality and their associated traits*

Dimensions	Traits
Neuroticism	Anxious, depressed, guilt feelings, low self-esteem, tense, irrational, shy, moody, emotional
Extraversion	Sociable, lively, active, assertive, sensation seeking, carefree, dominant, surgent, venturesome
Psychoticism	Aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathetic, creative, tough-minded

Taken from Matthews, Deary, and Whiteman (2003)

Whether personality psychologists utilise the Big Five, the Big Three, or some variation, most view traits as the most basic unit of individual psychological differences (McAdams & Olson, 2010). Below is a synopsis of recent work on the Big-Five traits, including a discussion on the possible lower-order components that constitute these traits. This is accompanied by a table (see Table 2.2) that contains the Big-Five personality domains, with their possible advantages and disadvantages.

EXTRAVERSION/POSITIVE EMOTIONALITY

Extraverted individuals are energetic, dominant, expressive, and outgoing, while introverted individuals are content to follow others' lead, lethargic, inhibited, and quiet. Three core features have been identified for this trait. They include the tendency to elicit and enjoy social attention (Ashton, Lee, & Paunonen, 2002), sensitivity to potential rewards (Lucas et al., 2000), and the tendency to experience frequent positive moods (Fleeson, Malanos, & Achille, 2002).

Extraversion/Positive Emotionality (PEM) comprises of four lower-order traits: sociability, social inhibition or shyness, energy/activity level, and dominance. Whereas, sociability is related to the tendency to act and to positive emotionality, shyness reflects reluctance to act, high negative emotionality, and a feeling of discomfort in social encounters (Nigg, 2000). While Extraversion is related to a display of high levels of energy and positive activity, it could also be associated with poor behavioural control and impulsivity (Rothbart, Ahadi, Hershey, & Fisher, 2001). The last component of Extraversion is dominance, which is the tendency to exercise control over others, to ensnare and enjoy others' attention, and to be confident and assertive (Hawley, 1999).

As can be seen from Table 2.2 Extraversion has certain associated benefits and costs. Extraversion can lead to benefits in terms of increased mating success, exploration of the environment, and social support (Nettle, 2006). However, Extraversion also has associated costs given that there is an increased risk to personal safety and reduced family stability.

NEUROTICISM/NEGATIVE EMOTIONALITY

Individuals high on Neuroticism are easily frustrated, vulnerable to stress, anxious, lacking in confidence, insecure in relationships, guilt-prone, moody, and angry. In general they tend to experience the world as threatening and distressing. Conversely, individuals low on this trait are emotionally adaptable and stable (Caspi, Roberts, & Shiner, 2005).

Neuroticism/Negative Emotionality (NEM) contains two lower-order traits, irritable distress and anxious (or fearful) distress (Rothbart & Bates, 1998; Shiner & Caspi, 2003). Irritable distress is associated with distress that is directed outwards in

the form of hostility, frustration, irritation, anger, and jealousy. Conversely, anxious distress is focused inwards and can include the tendency to feel guilt, sadness, insecurity, and anxiety.

The costs linked to Neuroticism include an increase in negative emotion and a decrease in physical health due to the constant experience of these emotions. Anxiety might however also act as a protective factor given that it results in hazard avoidance (Rothbart et al., 2000; Watson, David, & Suls, 1999). A further advantage of Neuroticism is that it may be beneficial in competitive fields since it can serve as a motivator for achievement (Nettle, 2006).

AGREEABLENESS

While agreeable individuals are empathic, considerate, polite, generous, kind, cooperative, and willing to accommodate others' wishes, disagreeable individuals are rude, stubborn, manipulative, spiteful, aggressive, and cynical (Caspi, Roberts, & Shiner, 2005). Agreeableness is connected to both Conscientiousness and Neuroticism. Agreeableness and Conscientiousness are liked in that both measure aspects of disinhibition as opposed to inhibition (Watson & Clark, 1999). Agreeableness and Neuroticism both measure proneness to anger. While Agreeableness measures the poor control of anger that is frequently displayed as aggression, Neuroticism measures the experience of angry emotion (Martin, Watson, & Wan, 2000).

The three facets associated with Agreeableness are pro-social tendencies, antagonism, and cynicism/alienation. Pro-social behaviour includes the tendency to be considerate, nurturing, kind, empathic, helpful, and generous (Eisenberg & Fabes, 1998). Antagonism can range from the propensity to be aggressive, gossip,

be hostile, and socially exclude others (Crick et al., 2001; Tremblay, 2000) to the propensity to be gentle and peaceful. Those with a propensity for cynicism/alienation mistrust others and feel mistreated by them (Martin, Watson, & Wan, 2000).

Similarly to Conscientiousness, Agreeableness with its correlates of trust and empathy is generally seen as advantageous. However, trust and empathy also have a downside (Austin & Deary, 2000). Too much trust and empathy can result in exploitation by others or inattention to personal gains. A balance thus needs to be found between Agreeableness and looking after one's own personal interests.

CONSCIENTIOUSNESS/CONSTRAINT

Individuals who are Conscientious lean towards persistence, order, planfullness, carefulness, responsible actions, and attentiveness, while also engaging positively with tasks, being willing to conform to group norms and following authority (Caspi, Roberts, & Shiner, 2005; Ashton & Lee, 2001). Those low on this trait are careless, distractible, unreliable, and irresponsible (Caspi, Roberts, & Shiner, 2005).

With six facets Conscientiousness/Constraint has the most identified lower-order traits. They include attention, achievement motivation, orderliness, self-control versus behavioural impulsivity, responsibility, and conventionality. Attention refers to the capacity to focus attention, shift mental energy, and persist at tasks even when faced with distractions (Caspi, Roberts, & Shiner, 2005). To pursue goals and strive for high standards over an extended period of time in a determined and persistent manner suggest high achievement motivation (Halverson et al., 2003). Orderliness is the propensity to be clean, organised, and neat, as opposed to disorderly and sloppy (Roberts et al., 2004). Behavioural impulsivity ranges from the tendency to be

careless (or carefree), impulsive, and incautious to the tendency to be behaviourally controlled, planful, and cautious (Halverson et al., 2003; Kochanska, Murray, & Harlan, 2000). Responsibility reflects the propensity to be dependable and reliable versus being undependable (Roberts et al., 2004). Upheld societal norms and traditions can be referred to as conventionality and can act as a protective factor against risky behaviour (Bogg & Roberts, 2004).

Conscientiousness is often considered a beneficial trait to have since it is generally negatively associated with delinquency and antisocial behaviour (e.g. Heaven, 1996). As noted in Table 2.2 this might not always be the case. Besides having an increase in physical health and life expectancy, individuals who are conscientious may miss out on immediate opportunities due to their delay of immediate gratification, rigidity, and "obsessionality" (Nettle, 2007, p. 483).

OPENNESS-TO-EXPERIENCE/INTELLECT

Although Openness-to-Experience/Intellect has been described by McCrae and Costa (1997b) as a trait that could potentially have important facets of the Big-Five it is the least understood and most debated trait. Individuals high on the Openness trait have a cognitive style that seeks out complexity and novelty, with an increased desire to make associations between apparently dissimilar constructs (McCrae, 1987). Openness and Intellect form the separate lower-order traits of the higher-order trait. Openness relates to creativity, aesthetic sensitivity, and imagination, while Intellect is associated with cleverness, perceptiveness, and rapidity in learning (John & Srivastava, 1999).

As detailed in Table 2.2 Openness-to-Experience/Intellect has both benefits and costs associated with it. At first glance the trait of Openness-to-Experience

seems to be only advantageous, with its increased creativity and attractiveness to potential mates. However, this unusual cognitive style can lead to damaging psychotic and delusional phenomena, from a belief in the paranormal and supernatural to an outright break with reality (Nettle, 2006).

Table 2.2. *The 'Big Five' personality domains, with their possible advantages and disadvantages of increasing levels, and relevant references*

Domain	Benefits	Costs
Extraversion	Sensation seeking, initiation of more social behaviour (Buchanan, Johnson, & Goldberg, 2005); increased physical activity and exploration of the environment (Kircaldy, 1982); have more social support (Franken, Gibson, & Mohan, 1990).	Increased exposure to risk (Nettle, 2005); elevated probabilities of migrating (Chen et al., 1999); increased likelihood of becoming involved in criminal or antisocial behaviour and being arrested (Samuels et al., 2004); an elevated probability of exposing offspring to step-parenting (Nettle, 2006).
Neuroticism	Positively correlated with competitiveness (Ross, Stewart, Mugge, & Fultz, 2001); enhances detection of threatening stimuli by locking attention onto them, interpreting ambiguous stimuli as negative, and speeding up reaction time (Mathews, Mackintosh, & Fulcher, 1997).	An increase in negative emotion systems such as fear, sadness, anxiety, and guilt (Nettle, 2006); Strongly predictive of psychiatric disorders in particular depression and anxiety (Claridge & Davis, 2001); increase chance for impaired physical health, due to constant experience of stress

		(Neeleman, Sytema, & Wadsworth, 2002); increase changes for relationship failure and social isolation (Kelly & Conley, 1987).
Openness	Positively related to artistic creativity (McCrae, 1987), which could also increase mate attraction (Nettle & Clegg, 2006).	Conceptually very similar to proneness to psychosis (Green & Williams, 1999). Charlton also argue for increased levels of paranormal beliefs (as cited in Nettle, 2006); associated with depression (Chioqueta & Stiles, 2005)
Conscientiousness	Delay of immediate gratification is in favour of a longer term plan (Nettle, 2006); through the adoption of healthy behaviour and avoidance of unhygienic risk, life expectancy is increased (Friedman et al., 1995).	Increase chance for developing eating disorders and obsessive-compulsive disorders (Austin & Deary, 2000); routines become pathological and may lead to missing spontaneous opportunities (Nettle, 2006)
Agreeableness	Contributes to the ability to be aware of others' mental states (Baron-Cohen & Wheelwright, 2004); increases harmonious interpersonal interactions and decreases violence and interpersonal hostility (Caprara,	Those who trust unconditionally are consistently outcompeted by those whose trust is conditional or selective (see Nettle, 2006); negatively related to achieved reward and

	Barbaranelli, & Zimbardo, 1996; Heaven, 1996; Suls, Martin, & David, 1998); helps to be valued as friends and partners.	status (Boudreau, Boswell, & Judge, 2001), and creative accomplishment (King, Walker, & Broyles, 1996)

2.1.2. Change and Continuity in Personality Traits

Traits by definition reflect stable individual differences. Nevertheless, what does longitudinal research evidence indicate? Does personality stabilise and if so, is there room for change? In order to answer these questions the subsequent section will be divided in three parts. The first will focus on the differential or rank-order stability of personality over time. The second will review the mean-level changes in personality across time, while the third will summarize three principles that direct personality development. The aim of these three sections is to provide a theoretical foundation for the assumption that traits are fairly stable and due to this stability there is a need to identify and research complementary personality characteristics that are more changeable.

2.1.2.1. Differential Continuity and Change

The extent to which individual differences remain the stable over time is referred to as deferential continuity (Caspi, Roberts, & Shiner, 2005). Continuity and change are often determined by correlations between personality scores across two time points (i.e. test-retest correlations; Watson, 2004). Over extended periods of time the successive assessment of traits indicates the temporal stability of/and individual differences in personality.

Two contradictory theories have been proposed to explain the stability of personality traits. The classical theory (McCrae et al., 2000) proposes that traits in adulthood are biologically based temperaments that are not susceptible to the influence of the environment and as a result, do not change over time. Conversely, the more radical perspective emphasises the role of life changes and role transitions in personality development and stability. It suggests that personality is fluid and changeable especially during periods of rapid physical, social, and cognitive change (Lewis, 2001). However, the existing longitudinal studies do not support either of the above mentioned theories. A meta-analysis of the stability of personality organised according to the Big-Five Model reveals the following major conclusions (Fraley & Roberts, 2005; Roberts & DelVecchio, 2000).

Firstly results from longitudinal analysis indicate that deferential continuity increases with age. In a meta-analysis Roberts and DelVecchio (2000) established that stability coefficients associated with each of the Big-Five personality traits were lowest for children (average 0.41), rising to higher levels among young adults (average 0.55), and reaching a plateau for adults between the age of 50 and 70 (average 0.7). Secondly, stability does not vary much across the Big Five traits nor is there any change in stability between genders or among the various assessment method (i.e. self-reports, observer ratings, and projective tests). Although young adulthood is characterised by dramatic changes related to roles and identity decisions, personality differences are consistent during this period. Fourth, personality stability peaks later in adulthood than originally thought. According to McCrae and Costa (1994) personality traits are fixed and unchanging after the age of 30. However, meta-analysis findings indicate that personality change throughout adulthood, gaining stability after age 50 with only modest changes taking place

thereafter (Terracciano et al., 2006). While individual differences are substantially stable, personality traits show modest changes related to increased maturity. These changes can be briefly summarised as most individuals increasing in Agreeableness and Conscientiousness, and showing decline in Neuroticism, Extraversion, and Openness throughout adulthood (McCrae & Costa, 2003). Lastly as much as 80% of variance associated with personality traits is stable across the lifespan (Terracciano et al., 2006). Tough this is remarkable stability that still leaves about 20% of variance free to vary over time.

From this several conclusions can be drawn. The stability of personality traits is remarkably high, so much so, that the only other psychological construct more consistent is cognitive ability (Conley, 1984). One can thus conclude that the Big-Five traits are fairly constant constructs that can be utilised to provide a stable indication of individuals' personality characteristics across time. Although young adulthood is marked with more identity and life changing decisions (Arnett, 2000) than any other life period, changes in personality traits seem to be relatively linear and stable from adolescence through young adulthood. Meta analytical results also indicate that personality stability peaks later than expected, considering McCrae and Costa (1994) suggested personality traits are fixed at age 30. Finally, when comparing the stability findings in recent meta-analysis with that of studies in the earlier twentieth century there seem to be few cohort changes in the stability of personality traits (Caspi, Roberts, & Shiner, 2005).

2.1.2.2. Mean-Level Changes

Whereas differential continuity refers to the relative stability of individuals' position in a trait distribution over time, it can be distinguished on a conceptual and

statistical basis from average values scored on each trait. The latter is typically referred to as mean-level change that is, the extent to which there are changes in the average value (mean levels) on any given trait within a population. Are 20-year-olds on average less conscientious than 40-year-olds, and do they become more conscientious as they age? In general, as individuals' age, they tend to become more comfortable with themselves and emotionally stable, they are less inclined to experience negative emotions or engage in risk-taking behaviour, and they are more responsible, caring, and focused on long-term plans (McAdams & Olson, 2010). This is what Caspi et al. (2005) refer to as the maturity principle in personality dispositions, which will be discussed in more detail in the subsequent section. Although McCrae and Costa (1997a) argue that personality traits do not show mean-level changes after adulthood, this has been brought into question by several researchers (Roberts, Walton, & Viechtbauer, 2006) and through meta-analysis results (Roberts et al., 2003; Roberts et al., 2006). In their more recent meta-analysis of 92 longitudinal studies Roberts et al. (2006) analysed the mean scores on traits for individuals from age 10 to age 70. The results indicate that whereas Conscientiousness tended to steadily increase across the life span, Agreeableness increased slowly up to age 50, then sharply increased between 50 and 60, after which it reached a plateau. Openness-to-Experience increased up to age 20 and then decreased after age 50. Neuroticism decreased up to age 40 and then levelled off. Social dominance related to Extraversion increased through age 30, whereas social vitality also associated with Extraversion decreased after age 50. The findings from longitudinal studies provide us with a number of principles that govern personality development.

2.1.2.3. Principles of personality development

The tendency of individuals to become more agreeable, conscientious, dominant, and emotionally stable over the course of their adult life is what Caspi et al. (2005) refer to as the maturity principle. Roberts et al. (2006) argue that the increases in Agreeableness and Conscientiousness and the decrease in Neuroticism are due to young adults taking on normative social roles related to work, family, and community involvement. An interesting finding is the variation that can be found on the maturity principle. Those individuals whose personality traits tend to change the least already show the tendencies associated with maturity. That is, they have low Neuroticism and high Conscientiousness, Agreeableness and Extraversion (Donnellan et al., 2007). This suggests that individuals who have already attained maturity with respect to traits do not need to make any further changes, whereas those who have not attained maturity still have much to change. Conversely, Costa and McCrae (2006) explained these trends as a result of biological maturation suggesting that individuals might be genetically predisposed to mature in these directions on the specific traits. It may be that this genetically predisposed programming increases our investment in certain social roles and as such results in the developmental and trait changes. Longitudinal data on twins also suggest a genetic influence in the stability of personality traits (McGue, Bacon, & Lykken, 1993). That is not to say that genes anchor traits in such a way that they are static. However, genes do contribute to the stability of traits over long periods of time (Caspi et al., 2005).

There are a few aspects of traits that influence their effect. Traits influence niche building which in turn increases continuity. That is to say individuals may seek out, create, or end up in environments that are compatible with their traits. Once an

individual is in this trait-consistent environment, the environment itself might increase behaviour that is trait consistent which in turn lessens any opportunity for change (Caspi et al., 2005). According to the corresponsive principle life experiences that result in personality trait change are not random (Roberts et al. 2003; Roberts & Robins, 2004). Instead individuals tend to create trait-consistent experiences that can transform personality traits. In an explanation Caspi et al. (2005) bring together social selection, where individuals select environments that are consistent with their personality traits, and social influence, where the experiences within the environment affect personality traits. Caspi et al. assume that individuals who are employed in leadership positions tend to be more dominant, and in turn their position and leadership experiences will increase their dominance.

Furthermore, traits are only one determinant of an individual's behaviour at any given time. An individual's emotions, moods, and situational factors will also affect behaviour. Instead of being exact there is variability in any given trait. An individual may possess some amount of Extraversion, but that does not mean he or she will always act with the same amount of Extraversion in all situations. Rather, as other factors influence the individual, he or she becomes more or less extraverted. It can thus be argued that one's traits are context dependent. An individual may not exhibit the same traits at work as he or she does at home. For example, when working as a lecturer, an individual might exhibit more Extraversion as a result of situational requirements, however at home the individual might tend to be lower on the Extraversion trait. In this example the person might exceed his set point on the Extraversion characteristic, and might require an environment that would bring the trait back into equilibrium with the set point (Reiss, 2000). According to Reiss (2000) individuals have a need for a certain level of basic desires such as social contact,

order, acceptance, and independence, to name a few. Reiss further argues that if individuals get too much of these basic desires they will respond by avoiding them. Hence, the individual who receives social contact exceeding his or her set point may seek afterwards to withdraw from social contact even for a short while. Although he or she is not an anti-social person the over-correction might bring the individual's need for social contact back into balance. By not seeking an equilibrium and intentionally surpassing or moving below the set point for a prolonged period of time individuals will experience a depletion of their limited personal resources, resulting in fatigue or an inability to properly self-regulate (Vohs & Baumeister, 2004).

2.1.3. Characteristic Adaptations vs. Traits

Research suggests that 80% of trait variance is stable across the adult life span (Terracciano et al., 2006) and that events encountered on a regular basis do not in fact have a notable effect on the change associated with traits (McCrae, 2011). Furthermore, traits have a 63% estimated effect on subjective well-being, larger than predictors such as race, age, income, and education (Costa & McCrae, 1984; Steel, Schmidt & Shultz, 2008). Research conducted by Lucas and Donnellan (2007) further suggests that two thirds of the variance in life satisfaction is stable over a one year period and one-third is stable over the long-term. If we abide by the belief that mental health is dependent on traits and that, as shown above, traits are fairly stable and resilient to change we might become despondent in our efforts to increase well-being. Faced with the above mentioned statistics it might seem that any effort to change or enhance well-being might be in vain.

There is reason for cautious optimism when the above mentioned results are inspected closely. Terracciano et al.'s (2006) findings indicate that 20% of the

variance in personality is free to vary over time and although routine encounters do not effect change in traits that does not mean that specific interventions do not. Furthermore, a third of the variance in subjective well-being cannot be accounted for by traits (Steel, Schmidt & Shultz, 2008). Similarly, one-third of the variance in life satisfaction in the short-term and two-thirds in the long-term is unrelated to personality (Lucas & Donnellan, 2007). Based on these findings it can be concluded that traits are not the sole determinants of well-being.

Considering the significant role traits have in individuals' lives it is important to consider how findings pertaining to traits might be beneficial for the research aimed at the increase of positive mental health. Although stability might be viewed as a form of stasis and inaction, an alternative perspective might view stability as a basis for security and predictability (McCrae, 2011). A stable identity and a long-term plan is a necessity in the process of planning and creating a satisfying life. Individuals plan for the future based on what appeals to them in the present. So if Extraversion is as changeable as the weather it would be fairly difficult for an individual to decide if he or she should settle in the country side or in an urban setting. It could be that a year from now the country side with its quiet, tranquillity has lost its appeal. Hence, without the stability provided by traits any plans made in the present might be of no use. Stability is just as important for social functioning and interactions (McCrea, 2011). Employers select employees based on the assumption that they will remain as enthusiastic, energetic, responsible, and hard working in the years to come. Similarly, in democratic countries people selected leaders with the understanding that an individual's behaviour will not suddenly change after he or she has been elected to power. Even life partners are chosen based on the assumption that their dispositions, habits, and values will remain fairly stable. It is also possible that even

the traits psychologists consider undesirable may be valued by the individual (McCrea, 2011). Although those low in Conscientiousness might acknowledge the value of hard work, they are still content not to engage in it.

Some psychologists' belief the objective of psychology as a science is to understand, predict, and control. Nonetheless, McCrae (2011) admits that personality traits can be utilised most successfully in the understanding and prediction of human beings, but are less successful in the attempt to elicit change. As a result there has been a focus on the strengths of individuals, or what McCrae (2011) refers to as "adaptive, constructive, and growth-oriented aspects of personality" (p. 196). In order to optimise psychological functioning and understand findings from a trait perspective the Five-Factor Theory (FFT) has been proposed (McCrae & Costa, 1996; 2008). Within the FFT there is a clear distinction between basic tendencies and characteristic adaptations. Whereas basic tendencies refer to personality traits, characteristic adaptations refer to motives, habits, goals, relationships, roles, attitudes, strivings, and values (McAdams & Pals, 2006).

The FFT proposes that traits are genetic in origin and unaffected by shared environments. This hypothesis is based on the following findings. Traits with the same structure can be found in various and differing cultures (McCrae et al., 2005). Traits are purely biologically based and isolated from direct social influences such as shared schools or parents (Bouchard & Loehlin, 2001). Traits are highly stable across long periods (McCrae, 2011), and events that happened in the past do not seem to have durable effects on traits (Terracciano et al., 2005). McCrae (2011) does acknowledge that some change in traits is in fact possible due to a transformation in their biological determinants. For example, Conscientiousness decreases with the development of Alzheimer's disease (Siegler et al., 1991), and

antidepressants increase Openness, Extraversion, and Conscientiousness, while also decreasing Neuroticism (Costa, Bagby, Herbst, & McCrae, 2005).

The interesting question is whether, given the stability of traits, there are other mechanisms that allow for adaptive personality and behavioural change. According to McCrae (2011) traits have an influence on characteristic adaptations and through them on behaviour. What do individuals want? How do they seek out what they want or avoid what they fear? What process do they follow during the development of plans and goals? Theories (Deci & Ryan, 1991) that attempt to answer these questions place emphasis on the motivational aspects that govern human life. Individuals are believed to be self-regulating agents that organise their lives through choices, hopes, and goals. Interventions should thus focus on changing the attitudes, goals, and habits that result in behaviour. In the short-term these changes would only affect behaviour. However, with the adoption of new patterns of behaviour, new cognitions, new goals, in a word new characteristic adaptations, there can be a sustained change. According to McCrae (2011) this requires the identification of the habits and cognitions that if changed would promote psychological functioning. There also needs to be recognition of the correct thoughts, behaviours, and goals that should replace the original cognitions and behaviour. Considering that these differ across individuals, the decision about which changes to make and what those changes should be needs to take into consideration the targeted individual, as well as, his or her resources.

This then is where the research on psychological and subjective well-being becomes instructive so as to facilitate the kinds of behaviour, goals, and thoughts that would be beneficial for the increase of well-being. For instance, research conducted by Steger, Kashdan, and Oishi (2008) proposes that eudaimonic as

opposed to hedonic activities are more likely to increase well-being. Similarly, an analysis of national survey data indicates the pursuit of altruistic and family oriented goals, instead of economic goals, facilitates well-being (Headey, 2008). The pursuit and attainment of goals, especially in the face of obstacles, provide individuals with intentional activities that can promote well-being since they result in a sense of accomplishment (Steger, Kashdan, & Oishi, 2008). The ability to set goals is applicable to all areas in one's life and can interact with personality traits to affect the outcome of behaviour. It is also possible for goals to contradict traits. For example, an introvert may decide that it is her primary goal is to find a mate. To succeed in this endeavour she would need to engage in situations, activities, and behaviour that could be considered extraverted in nature. The goal, due to its importance, temporarily overshadows her dispositional traits. If she attains the goal she might settle back into her general routine that is dictated by her dispositional traits.

2.1.4. Big-Five's Relationship with Well-Being

In previous research personality traits emerged as predictors of important outcomes, including emotional experience (Terracciano et al., 2003a, b), vocational interests (Gottfredson et al., 1993), job performance (Barrick & Mount, 1991), marital stability and satisfaction (Kelly & Conley, 1987), political preference (Caprara & Zimbardo, 2004), a variety of health risk behaviours (Trobst et al., 2002; Terracciano & Costa, 2004), a wide variety of psychiatric disorders (Camisa et al., 2005), and academic performance (Chamorro-Premuzic & Furnham, 2003). Of more interest here, personality traits have been shown to be strongly related to well-being (Costa & McCrae, 1980; Steel, Schmidt, & Shultz, 2008).

Personality appears to be a key element in SWB, due to its receptiveness of emotional stimuli, duration of emotional reactions, and the intensity of emotional responses (Kim-Prieto et al. 2005). It has been argued that the influence of personality traits on SWB is large in comparison to other constructs such as age, income, and education (Costa & McCrae, 1984). Much research (Costa & McCrae, 1980; Diener, Suh, Lucas, & Smith, 1999; Steel, Schmidt, & Shultz, 2008; Vittersø, 2001) has focused on the relationship between SWB and two of the Big-Five traits, Neuroticism and Extraversion. This is due to the fact that positive and negative affect are respectively represented within Extroversion and Neuroticism. Steel, Schmidt, and Shultz (2008) even went to the extent of suggesting that "...Neuroticism and Extraversion are nearly identical to two elements of SWB, negative and positive affect..." (p. 139). Individuals high in Neuroticism tend to be anxious, moody, easily upset, and depressed, thus experiencing more negative emotions. While, Extraverts tend to be outgoing, sociable, optimistic, and energetic, suggesting they might experience more positive emotions.

In a meta-analysis investigating the relationship between SWB and personality, DeNeve and Cooper (1998) indicate that Agreeableness, Conscientiousness, and Extraversion are consistently positively associated with SWB, while Neuroticism is consistently negative associated with SWB. Specifically, Extraversion accounted for approximately 4% of the variance in the positive affective state, while Neuroticism accounted for 5% of the variance in the negative affective state. More recently a meta-analysis conducted by Steel, Schmidt, and Shultz (2008) questioned the results published by DeNeve and Cooper (1998). In the study 249 articles were utilised, providing data on SWB and the Big-Five traits as measured by the Neuroticism-Extroversion-Openness Personality Inventory (NEO; Costa &

McCrae, 1992). Extraversion accounted for approximately 19% of the variance in positive affect, while Neuroticism accounted for 29% of the variance in negative affect. The primary reason for the difference in findings appears to be scale differences and the amount of samples utilised. In the meta-analysis conducted by Steel et al. the final results were based on the NEO scales and much larger sample sizes. Beyond these two personality dimensions, Agreeableness and Consciousness seem to influence SWB only moderately (DeNeve & Cooper, 1998), while Openness to Experiences is deemed to have the weakest relationship with SWB (DeNeve & Cooper, 1998; McCrae & Costa, 1991). In an analysis of the combined relationship between personality and SWB regression results indicate that personality traits can account for 39% of the variance (or 63% disattenauted) in a combined SWB measure (Steel, Schmidt, & Shultz, 2008). When comparing this result to that of Lucas (2007) where it was indicated that 50% of the variance in SWB can be accounted for by personality, this is one of the largest estimated effects (63%) reported for the relationship between personality traits and SWB. However, even in this case a third of the variance is still not accounted for by personality traits, which leaves potential for the application of an intervention to increase subjective well-being. As reviewed above, the literature on the relationship between SWB and the Big-Five is extensive. However, the literature on the association between PWB and the Big-Five model is not as comprehensive.

Ryff and colleagues also examined the relation of the Big-Five traits to their multiple dimensions of psychological well-being. Schmutte and Ryff (1997) indicated Conscientiousness, Extraversion, and Neuroticism to strongly predict multiple aspects related to PWB, including purpose in life, environmental mastery, and self-acceptance. Agreeableness is predictive of positive relations with others, while

Neuroticism emerges as the strongest predictor of Autonomy. As the final dimension of PWB, Openness to Experience was predicted by the personal growth dimension. In the study conducted by Keyes, Shmotkin, and Ryff (2002) utilising an adult sample consisting of 3 032 adults recruited from the United States, it was indicated that those with high Conscientiousness and Extraversion experience high levels of PWB, and those low in Conscientiousness and Extraversion had low PWB. The results further indicated that those with high levels of Openness to Experience enjoyed high levels of PWB, but low levels of SWB, and vice versa.

In a longitudinal ten year cohort study, 5566 participants were asked to complete a mail questionnaire in order to establish whether individuals low in PWB are at risk of having elevated levels of depression (Wood & Joseph, 2010). The relationship between personality traits, Extraversion and Neuroticism, and their effects on PWB was also investigated. The results indicated PWB to be predictive of depression even ten years after the initial assessment. That is individuals with low PWB were at greater risk of depression and compared to ten years earlier they were also seven times more likely to have higher levels of depression. These results hold even after controlling for personality, levels of prior depression, medical conditions, and demographics, as well as, measuring PWB as a global construct and not as separate indicators (e.g. autonomy, purpose in life, positive relationships with others, environmental mastery, self-acceptance, and personal growth).

So if personality traits are as stable as reported, it could result in the presumptuous belief that, happiness depends on personality traits, personality traits are stable, and as such happiness is unchanging. However, as the following argument would demonstrate this is not necessarily the case. In an effort to explain trait's effect on well-being McCrae and Costa (1991) provided the following

explanations. According to them, Extraversion and Neuroticism provide a temperamental explanation of well-being. That is, extraverts are cheerful individuals regardless of their actions or experiences. This has been supported by evidence that extraverts tend to be happier than introverts (Lucas & Baird, 2004). Conversely, neurotics will be gloomy under any circumstances. McCrae and Costa (1997a) also argue that the link Conscientiousness and Agreeableness have with well-being might be instrumental. This is due to these traits' relationship with well-being being mediated by the productive and intentional activities high scores on these traits engage in. According to the findings in trait research any interventions therefore need to be tailored to the traits of the individual. It is likely that the well-being of an individual high in Neuroticism might be slightly increased if instructed to pursue goals; however he or she might still be relatively unhappy. These individuals are predisposed to sabotage their own success and well-being. For example, in order to attain what they perceive to be perfection they will set unrealistic goals or goals that are too difficult making attainment almost impossible and failure likely. Similarly, Agreeableness and Conscientiousness will only increase well-being when they are actively expressed through actions. According to McCrae (2011) individuals learn through trial and error that they can increase their well-being if they accomplish tasks or help others, and as a consequence already automatically engage in these strategies. As such, well-being can be increased by matching actions to the individuals. Individuals who have low levels of Conscientiousness will likely not experience an increase in motivation when goals are achieved because they do not feel any sense of accomplishment. Similarly, individuals high in Neuroticism will not understand how helping other might increase their sense of well-being because to these individuals such actions are not intrinsically rewarding. In the examples just

mentioned the actions do not match the person, as such attention should be paid to matching activities to individuals (Lyubomirsky, Sheldon, & Schkade, 2005).

As the argument presented above shows, personality traits are not the only determinants of well-being and thus justify optimism about the prospect of increasing well-being and other psychological outcomes. The stability of personality traits can be viewed in a positive light since it provides us with a source of predictability and stability. It could be argued that in order to create a satisfying life, long-term planning is required, as well as a stable identity. Individuals tend to make plans for the future based on their characteristics and what appeals to them at a specific point in time, these plans would be futile if personality changed drastically and quickly. As such, the continuity of personality is beneficial to individuals in the construction of their future plans.

From this chapter it can be concluded that personality is a dynamic constellation of dispositional traits and characteristic adaptations that both have a unique and related role to play in the promotion of well-being. Dispositional traits are generally considered to be a fairly stable indicator of personality that largely contribute to and asserts influence on individuals and their lives. The question is whether there are other mechanisms that can modulate the effects of these very stable traits. Research on personal strivings thus provides a second personality perspective, one that perceives individuals as self-determining agents who organise their lives through the adoption and attainment of goals.

2.2. FUTURE ORIENTATION

Given the stability of traits the question is whether there are personality mechanisms that allow for adaptive personality and behavioural change. In the subsequent section future-orientation is proposed as a characteristic adaptation that might allow for behavioural change through the setting and attainment of goals.

2.2.1. Defining Future-Orientation

In general individuals prefer to have some kind of control over their life and as such create plans to ensure their future unfolds in a specific way. However because of fortuity people cannot always structure and execute their life according to a set plan (Bandura, 2006). People often find that their life has taken an unexpected turn resulting in an unplanned trajectory. Yet, the unexpectedness of life does not imply people do not have control. Instead, according to Bandura (2006) there are ways for people to capitalise on the fortuitous nature of life. Through the application of self-belief, competencies, and knowledge individuals can benefit from fortuitous circumstances. Alternatively, individuals can also live in such a way as to maximize the amount of chance happenings and utilise them to their benefit.

Bandura went on to state that individuals are not just the products of their life circumstances but also contributors. Specifically, individuals are “self-organizing, proactive, self-regulating, and self-reflecting” (Bandura, 2006, p. 3). These then comprise the four core elements of human agency. The first element relates to individuals’ intentional involvement in the development of action plans and strategies to accomplish them. Agency also incorporates temporal extension. Although associated with plans for the future, temporal extension, also involves people’s ability

to set goals and anticipate the consequences of their actions. As the third element of human agency, self-regulation enables individuals to regulate their behaviour according to their own standards. Generally the behaviour individuals engage in can be linked to increased satisfaction and sense of pride. Conversely, individuals tend to avoid behaviour that would result in a diminished sense of self-worth. The fourth and last element of agency is self-awareness. Through self-examination individuals are able to judge their own functioning and make corrections where necessary. They thus evaluate their self-efficacy, the significance of their pursuits, and the reliability of their thoughts and actions (Bandura, 2006).

This belief that one can influence change through one's own actions is the basis for human well-being, accomplishments, and motivation (Seginer, 2009). Without this belief individuals will lack the motivation to act or to persevere during difficult times. According to Bandura (2006), the future cannot influence current behaviour, instead through the visualisation of the future individuals can increase their motivation. Seginer (2009) defines these subjective images about the future as *future-orientation*, while Nurmi (2005) refers to this as the ability to think about and plan for the future. Those who think about the future typically think about what is likely to happen or what they want to achieve and as a result they put a lot of effort into realising these representations of the future. It may also be that individuals feel a sense of regret when certain hopes for the future do not become a reality. The degree to which individuals are able to look into the future and associate that with their present behaviour differs from one person to another (Simons, Vansteenkiste, Lens, & Lacante, 2004). Some individuals may understand how their current behaviour is associated with desired future goals and the attainment of these goals. Others may prefer to live in the present and tend to anticipate how their current

behaviour may influence their future to a lesser extent. The construction of these subjective images depends on the interplay between individuals' needs, values, their socio-economic reality, and related to this the opportunities for development afforded by their environments (Seginer, 2008).

Future-orientation has generally been used in the past to refer to loosely-related motivational, cognitive, and attitudinal concepts. In previous research the term "future orientation" indicated the importance individuals attach to the present as oppose to the future (Numri, 1991) the extent to which thinking is orientated towards the past, present, and future ("time-orientation"; Hoornaert, 1973), how far into the future individuals tend to think and plan ("temporal extension"; Lessing, 1972), the extent to which one thinks about the future ("time perspective", Cauffman & Steinberg, 2000), the extent to which a person believes there is a link between current decisions and future well-being (Somers & Gizzi, 2001), a person's belief that he or she has control over his or her future (McCabe & Barnette, 2000), and the extent to which a person engages in goal setting or planning (Nurmi, 1989). Future orientation has also been used by Trommsdorff and Lamm (1980) to refer to individuals' optimism and pessimism with regards to the future. Historically Lewin (1942) was one of the first researchers to recognise the importance of what he termed a psychological future, stating that:

> "The picture presented by this "psychological future" seldom corresponds to what actually happens later...But, regardless of whether the individual's picture of the future is correct or incorrect at a given time, this picture deeply affects the mood and the action of the individual at that time" (p. 103 - 104).

From these different, but loosely related definitions it is clear that future orientation has certain motivational, cognitive, and attitudinal aspects (Seginer, 2009). The motivational component of future orientation includes the fears, hopes, and expectations individuals have about the future, as well as the extent to which they formulate plans to achieve long-term goals. Furthermore, how people think about factors that may influence their future, as well as the kinds of tools they have developed to attain goals are associated with the cognitive component of future-orientation. The attitudinal component relates to how far into the future individuals project their hopes and expectations. That is, do individuals have a preference with regards to long-term as opposed to short-term goals (Nurmi, 1991; Steinberg et al., 2009). As a result of the overlap between the above mentioned definitions and perspectives, there is little consistency in how future-orientation has been conceptualised (Trommsdorff, 1983). For the purposes of this thesis we recognise future-orientation as the active engagement in future thinking and behaviours related to the future, thus realising certain aims, experiences, and events.

2.2.1.1. Personal Growth Initiative

In recent years Personal Growth Initiative (PGI; Robitschek, 1998; 1999) has been proposed as the operationalisation and measurement of the cognitive evaluation of the future. PGI relates to individuals' awareness of life areas that need growth and ways to make this happen. When an individual becomes aware of certain areas that are in need of development or change, the resulting effect can be a decrease in well-being. With the awareness that something is lacking an individual can have one of two actions. The individual can ignore the dissatisfaction with specific aspects of his or her own life, and make adjustments in such a way that the

problem does not interfere with life. Or individuals can implement behavioural changes that might result in greater well-being. This would suggest that individuals have an unsatisfactory perspective of their current situation and envision a better future. It may be that they are unsatisfied with the future they see at present and as a result goals may be set to bring about a different future. It may also be that individuals evaluate their current actions and anticipate that they will not result in a future they want. According to the PGI theory these varying reactions can be due to differing levels of PGI (Robitschek, 1998). In order to understand PGI it is important to gain an understanding of how personal growth is conceptualised.

Distinguishing Personal Development and Growth

Wessler and Wessler (1997) criticised the use of the concept "growth" stating that "vague concepts like 'growth'…became counsellor clichés and eventually entered the language of everyday life as meaningless psychobabble" (p.175). Irving and Williams (1999) agreed with this arguing that terms such as "personal growth" and "personal development" are used synonymously in clinical and academic settings. Although personal growth and personal development refer to the acquisition of new knowledge, skills, and perceptions, it has been suggested that there are several important differences between the two concepts.

Despite the fact that development and growth refer to change that takes place as a person works towards something, neither refers to random change. If the need for a certain skill arises a person can develop that skill by constructing goals that need to be met within a certain time limit (Irving & Williams, 1999). The achievement of these goals would thus result in the person being able to apply his or her new skill. Although this process does not apply to growth, it cannot be said that growth is

random. Within the personal development process a person can either succeed or fail in his or her developmental objectives, but growth can only happen if success is achieved. Growth can be identified once a person looks back at the past and is able to judge whether all his or her skills, knowledge, and experience have contributed to growth. Hence, growth is not a process where a person can deliberately enter into purposeful action to bring about change; rather it is a value judgement, made after the fact. Thus a person will only perceive growth if the development outcome can be judged as positive. However, development does not necessarily refer to success as such (Irving & Williams, 1999). For example, if a swimmer wants to develop his swimming skills and he performs at his personal best even though he came last in a race, he will still be able to conclude that he developed his skills. Following this argument, Irving and Williams would thus be of the opinion that, if a person starts on a counselling course and half way through decided to leave the course, a fair amount of development would have taken place. However, they would not be of the opinion that the person can claim to have grown. The conclusion that can be reached is that in order for growth to be viewed in the same way as development a person would have to be able to plan for it and work towards a definable goal.

Based on the above argument by Irving and Williams personal growth can only take place if individuals succeed in their developmental outcomes. The current thesis would, however, disagree with this argument. Even though individuals do not attain their ultimate goal or make a success of the venture they embarked on, they do gain knowledge, skills, and experience that contribute to the person they are. Based on the argument made by Irving and Williams, failure makes no contribution to individual growth. We would disagree with this by stating that when individuals fail they can learn from their mistakes and attempt not to make the same mistakes in the

future. For instance, if the student in the example above left the counselling course half way through he or she would still have gained a fair amount of knowledge, skills, and experience related to their course that could be applied in the future. In addition, the student would also have had the opportunity to gain an understanding of how his or her actions or lack thereof may have contributed to his or her failures or successes at university. Ultimately, a counselling degree was not achieved, but it cannot be said that personal growth did not take place.

When faced with the “self-actualising tendency” Irving and Williams (1999) are willing to make an exception. They put forth that the actualising process can be defined as, a person in the process of developing certain characteristics that are deemed appropriate for a self-actualised person. The fact that the self-actualising process is definable in terms of certain aims a person works towards, could be used as a basis for the theory that personal growth can be planned. Thus the skills a person develops and the experience gained in every situation accumulate over time to encompass personal growth. Based on the preceding arguments it can be concluded that personal growth is an intentional process that can be planned.

Defining Personal Growth Initiative

Individuals can develop or change on a continual basis as a result of intentional and unintentional processes (Ryff, 1989; Robitschek, 1998). The intentional involvement in the change process could be the result of individuals’ dissatisfaction with their fixed state of development. Robitschek (1998) defines PGI as an “…active, intentional engagement in the process of personal growth” (p. 184). It is a global construct that reflects the pursuit of a variety of affective, behavioural, or cognitive change across all life domains. The cognitive components refer to

individuals' knowledge of aspects in their lives that they are unsatisfied with and the knowledge of how to change these aspects. By converting this knowledge into action, individuals are able to initiate change within themselves or their lives. Those with high levels of PGI are aware of growth that already took place, but still intentionally seek opportunities to bring about more growth in all life domains (Whittaker & Robitschek, 2001; Robitschek, 2003). Although PGI contains the phrase 'personal growth' Robitschek is adamant that PGI does not measure personal growth. Instead it measures a person's intentional propensity for growth. If a person follows through on this inclination, it will result in him or her being a well-developed person that seeks opportunities to develop and learn, as well as, being adaptive to change. This adaptability to change is just one of the benefits of having high levels of PGI.

Benefits of a high PGI

An individual with a high PGI has specific skills he or she carries through life. These cognitive, behavioural, attitudinal, and motivational skills can be utilised in every life experience. For instance an individual's PGI level will influence the extent to which he or she seeks out and makes use of opportunities (Robitschek, 1999; Robitschek & Keyes 2009). As with most psychological skills, PGI can be increased through therapy or experience (Robitschek, 1999). Being aware of and capable of using intentional change is important in every person's life, especially in today's modern, unpredictable society. Death in the family, illness, or layoffs is all examples of changes that can occur without warning and have to be dealt with in a healthy, adaptive way. If a person has knowledge of the self-change process and has implemented it before, it will make it easier to effectively handle the challenges they

might face in the future. Individuals with a high PGI might be better able to handle a distressing event and can be confident in their ability to cope, because they can foresee problems and implement strategies to prevent them from occurring (Hardin et al., 2003). Alternatively, having high levels of intentionality with regards to change will enable individuals to perceive choices when a challenge arise and thus enable them to choose ways in which they can turn the situation into an opportunity for growth (Robitschek, 1998). The results therefore suggest that PGI protects against emotional distress through prevention and increases well-being through intentionality.

In previous research PGI has been associated with greater assertiveness, instrumentality, internal locus of control (Robitschek, 1998), career exploration, problem-focused coping, and vocational identity (Robitschek & Cook, 1999). Furthermore, PGI has been positively correlated with an awareness of intentional ways to grow (Robitschek, 1999), multidimensional well-being (social, psychological and emotional; Robitschek, 1998; Robitschek & Keyes, 2009), egalitarian gender roles (Robitschek, 1998), and a positive perception of family functioning (Whittaker & Robitschek, 2001). Conversely, PGI correlates negatively with psychological distress and chance locus of control (Robitschek & Kashubeck, 1999).

It is worth noting that the majority of the research conducted by Robitschek and her colleagues made use of a college student population, more specifically students in introductory and upper level psychology courses. This could influence results, as students in general are in a period of transition and growth (Robitschek, 1998). Psychology students might also be used to psychological testing, as well as, psychological measures. It is thus possible that the psychology students are aware of what is being measured by the Personal Growth Initiative Scale (PGIS) and might

provide answers that could indicate intentional involvement in growth where there is none. In addition, a large part of the exiting PGI literature utilised the PGIS-I (Robitschek, 1998) and not the PGIS-II which has recently been developed (Robitschek et al., 2012). The PGIS-I is a nine-item Likert-type scale that assesses the degree to which an individual is engaged in the cognitive and intentional process of personal growth. It measures PGI as a uni-dimensional construct, consisting of cognitive (knowledge) and behavioural (intentionality) items. More recently Robitschek et al. (2012) reconceptualised PGI as a multi-dimensional construct that contains four aspects. The first of these aspects is associated with individuals' preparedness for change. Related to this readiness for change, is the second aspect, planfullness. This is the ability to plan the change process, while also utilising the resources at one's disposal, which is also the third aspect of PGI. Individuals' tendency to intentionally engage in behaviour that will assist in the process of growth or change makes up the last of the PGI aspects. Due to the recent development of the PGI-II, the majority of the research findings related to PGI are based on the original uni-dimensional scale. Apart from the initial development and validation of the PGIS–II (Robitschek et al., 2012; Yakunina, Weigold, & Weigold, 2013), few published studies utilise the PGI-II. Initial results show PGI-II to be related to other agentic characteristics. For instance, the PGI-II positively correlates with instrumentality, assertiveness, and internal locus of control (Robitschek et al., 2012), while also being modestly associated with social desirability (Robitschek et al., 2012; Weigold, Weigold, & Russell, 2013). A study examining those factors that influence the adjustment of international students, indicated that PGI and hardiness are both positively related to the adjustment of 386 international students. Whereas PGI had a

direct effect, the relation between hardiness and adjustment was partially mediated by acculturative stress (Yakunina, Weigold, & Weigold, 2013).

Although PGI has been used by Robitschek and a few other researchers over the last decade, it has not received as much attention as some of the other future oriented constructs. It is thus important to determine if PGI makes an independent contribution to psychological research, specifically research related to future-orientation. One theory that seems to share more similarities than differences with PGI is the Hope theory (Snyder, 1995). However before a comparison is made between the two constructs it is important to understand the elements that constitute Hope.

2.2.1.2. Hope

In the earliest references to Hope as a cognition Erikson (1964) refers to “the enduring belief in the attainability of fervent wishes” (p. 118). Stotland (1969) expanded this definition to include the perceived probability of goal attainment, by stating that Hope was “an expectation greater than zero of achieving a goal” (p. 2). Farran, Herth, and Popovich (1995) recognized Hope as a thought process that consists of five elements. According to Farran and colleagues Hope requires goals and the ability to articulate those goals. To experience Hope access to resources such as social connections, as well as, emotional and physical energy are required. Thirdly, Hope is action oriented, since it requires action to be taken in an attempt to reach one’s goals. Furthermore, Hope also requires a sense of control over internal regulatory states related to the past, future, and the present. This then brings us to the final element of Hope, the ability to imagine the future.

Building on the work conducted by these cognitive theorists, Snyder et al. (1991) proposed a comprehensive Hope theory, that has become one of the most well developed and researched theories on Hope. The saying “where there is a will there is a way” encompasses the gist of Snyder’s Hope theory (Snyder et al., 1991). The saying makes the assumption that if an individual is motivated enough he or she will find a way to achieve his or her goal. Yet, Snyder et al. (1991) acknowledges that motivated individuals will not automatically perceive a way to achieve their goal. It is also possible that a person may know how to reach a goal but might lack the necessary motivation to pursue it.

When referring to Hope as a research interest academics and non-academics alike, perceive it with scepticism (Snyder, 2000). The scepticism exists because Hope is a concept most individuals are aware of and can define on some level. In everyday life the concept of Hope is used as a verb, for example “I hope to pass the exam.” From an academic perspective Hope is viewed as both a verb and a noun, and refers to a state of mind (Snyder et al., 1991). When hope is used in layman’s terms, it refers to the achievement of a goal or a preferred outcome. As such, the mechanisms at work during the Hope process are never considered. When an individual hopes for a specific outcome, two elements might be at work; agency and pathways. These two interrelated elements are constantly in interaction to bring about a preferred outcome.

Defining Hope

Snyder, Irving, and Anderson (1991) define Hope as “a positive motivational state that is based on an inter-actively derived sense of successful (a) agency (goal-

directed energy) and (b) pathways (planning to meet goals)" (p. 287). This definition involves three distinct components: goals, agency thinking, and pathway thinking.

Agentic and Pathways Thinking

As a component of Hope, agentic thoughts constitute the motivational factor of the Hope theory and involve an individual's perception about pathways available to him or her. If an individual makes effective use of agency thinking it will result in the motivation to start on a specific pathway and to continue on this route until the goal has be obtained. Although agency thinking is important throughout the goal process, it is especially important when barriers to goals are encountered. A person's mental energy will determine whether alternative pathways are considered and chosen (Snyder, 2002). The routes that people generate to get from where they are to where they want to be (the goal) are defined by Snyder (2002) as pathways. High-Hope individuals will generate various routes and choose the most effective route. There will also be a confidence that the chosen route might have a positive effect on goal attainment. However, if individuals are faced with an obstacle that could hinder goal progress or judge a route to be ineffective and not leading to the desired result, alternative routes can be selected or changes can be made to the current route. In contrast to this effective use of pathways thinking individuals with lower Hope levels will want for well-defined routes and alternative routes. There will also be an absence of the necessary confidence to make the route they are currently on work effectively (Irving, Snyder & Crowson, 1998; Snyder, Harris et al., 1991; Snyder et al., 1996). It is thus possible that high-Hope individuals, as opposed to low-Hope individuals, will be more capable to alter their pathways thinking in such a way that goals are attained in an effective manner (Snyder, 2002). Thus although agency and pathways

are related to each other, it does not automatically mean that both will always be present.

Goals

As a result of the reciprocal relationship between Hope and goals, Snyder and colleagues used findings from the goal setting literature to formulate recommendations for the increase of Hope. Hope can often be an abstract concept that is difficult to define. As such, it can be extremely frustrating and difficult to maintain the commitment and determination required to accomplish these hopes. By clarifying goals a pathway to achievement becomes apparent. According to Edwin Locke (1996), who has been working in goal setting research for decades, commitment to the attainment of goals is essential. When individuals believe that a goal is not only important, but attainable, commitment to that goal increases. Similarly, if there is a belief that they possess the skills required to accomplish the goal they are more likely to maintain their commitment to the pathway that might be positively correlated with attainment. Within the Hope theory, Snyder (2002) identified two goal types that individuals may work to obtain. Positive (approach) goals are goals set for the first time, to aid in the maintenance of a present goal or to contribute to a goal wherein progress has been made. Negative (outcome) goals indicate goals that are set as a preventative measure, where the aim is to circumvent or delay an undesired outcome.

Starting in the goal pursuit process high-Hope individuals generate more goals than their lower Hope counterparts. Therefore, should the first-choice goal become unreachable, there are alternative goals to choose from. This is an indication of high-Hope individuals' ability to let go of goals that cannot be attained and move on to

new attainable goals. Before a specific goal is decided upon, the expected outcome of the goal process is taken into account. The reasoning is that individuals will be more likely to choose goals that are in line with their own standards and similar to previous tasks (Snyder, Harris et al., 1991). In order for goals to induce Hope they do not need to be easily attainable or for that matter a challenge. If a goal is easy, a high-Hope individual will change the goal standard in such a way, that it becomes a challenge and will demand the utilisation of his or her skills (Snyder et al., 1991). Conversely, difficult goals will be altered in such a way that they can be attained. For instance, the goals can be broken down into sub-goals making them easier to achieve (Snyder, Cheavens, & Sympson, 1997; Snyder, 2002). Another benefit of breaking down goals is that it increases Hope. When smaller more immediate goals are completed it shows progress and partial success, which increases the motivation to continue the pursuit of the larger goal. That is, with each successful step taken there is a sense of ultimate success. This is also related to goal clarity (Snyder, 1995). The goal of 'losing weight' will not make a big contribution to Hope levels, because of the lack of specificity. Without a clear, concrete goal individuals will lack the necessary motivation and they will be unable to monitor their progress.

Pathways and Agency Interaction Model

Agency and pathways thinking are thought processes that are learned during childhood. If people lack hopeful thoughts it is because they were never taught to think this way or events intervened in the development of these thoughts. Individuals, who develop hopeful thinking implement it throughout their lives through the use of the goal process (Snyder, 2002). This means that once Hope has been developed it is resilient and constant across situations and time (Snyder et al., 1991). Hope can

be measured either as a dispositional trait or a temporal state. State Hope “provides a snapshot of a person’s current goal-directed thinking” (Snyder et al., 1996, p. 321). Trait Hope relates to an individual’s predisposition to cognitively analyse goal-related behaviour, outcomes, and capabilities (Snyder, 1995). Previous research (Curry et al., 1997) found that both trait and state Hope are strong predictors of performance.

Because hopefulness varies and can be measured in terms of degrees, there are differences in individuals’ pathway-agency-interactions. Hope is thus an individualistic concept that cannot be objectively defined by other people. Rather it is a subjective tendency that should be assessed by individuals themselves (Snyder et al., 1991). High-Hope individuals will experience a constant interaction between agency and pathways, and it will happen rather quickly. In contrast, individuals low in Hope will experience a slow interaction. A third possibility is that no interaction takes place, resulting in no Hope. When an individual experiences high-pathways thinking, but low-agentic thinking, there will be a lack of necessary motivation. High-agentic thinking and low-pathway thinking will result in the necessary motivation but a lack of possible routes to attain goals. Thus, if thoughts of either agency or pathways are absent there is a diminished interaction between the two concepts and consequently lower Hope levels (Snyder et al., 1991; Snyder, Harris, et al., 1991).

It is however important to realise that Hope is not a hierarchical system. Increased agency will not automatically have a direct impact on the development of possible pathways. Neither does the contemplation of pathways directly generate the necessary agency. Rather agency and pathways rest on a continuum and are in constant interaction with each other throughout the goal-directed process. That being said, simultaneous change in goals, agency, and pathways are also not a requirement (Snyder, 1995). Rather, if change takes place in one of the three

elements, it should result in change in the remaining elements and vice versa. This interplay between agency, pathways, and goals forms part of integrated process that will subsequently be explained.

The appraisal of the outcome's value will take place in the pre-event phase (see Figure 2.1) of the Hope model. If at the end of the appraisal process the goal is deemed important Hope will develop. During the agency and pathways interaction there will be a constant evaluation to ensure that the goal being pursued is of sufficient value to continue the cognitive processing. If the evaluation is negative, the conclusion will be that the goal is unimportant and the interaction between agency and pathways will cease (Snyder, 2002). If the goal is evaluated as important, the pathways and agency thinking will be activated and continue. At the start of this process the individual might experience an emotional reaction, which can influence the interaction between agency and pathways thinking. Despite the assertion that cognitions are primary in the Hope theory, Snyder and colleagues (2005) suggest that emotions are a by-product of goal directed thoughts. Positive emotions are elicited when there is perceived success and these emotions should serve as reinforcement for goal pursuit. Negative emotions are elicited upon perceived failure and indicate that different pathways should be utilised in future pursuits (Snyder, 2000). Thus cognitions about the goal process produce emotions which in turn influence the thinking of the person in the midst of pursuing a goal.

At this stage in the goal pursuit process differences between high- and low-Hope individuals should be noticeable. A high-Hope individual starts the goal pursuit enthusiastically, perceives it as a challenge, engages in positive self-talk, and employs positive emotions as reinforcement in the goal process. Furthermore, he or she regards a specific situational goal with a focus on success and not failure

(Snyder, 1995; 2002). Conversely, the low-Hope individual does not just start the goal process in a negative manner, but will approach a goal with a sense of failure and ambivalence, resulting in a negative disposition throughout.

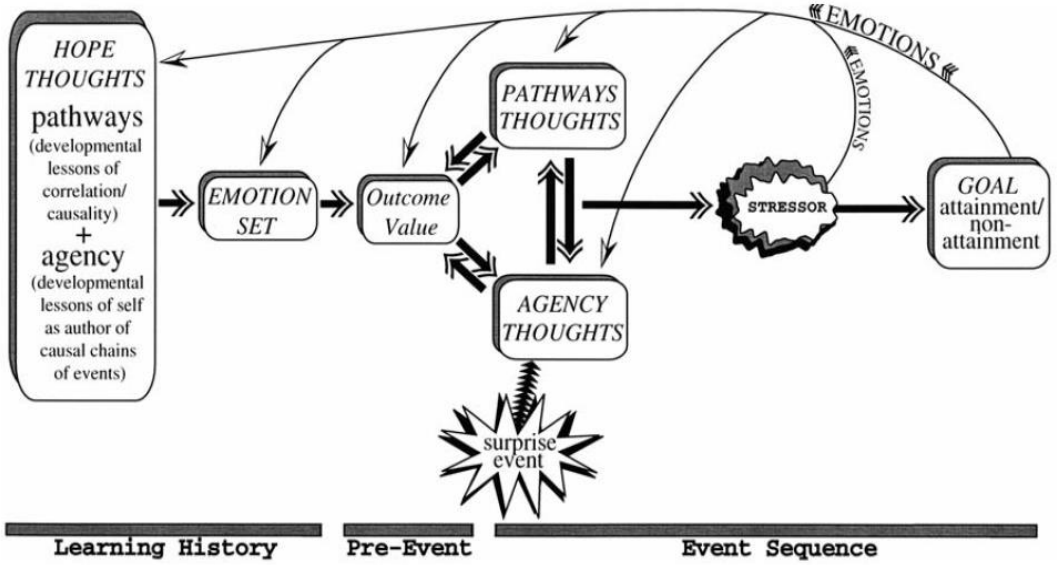

Figure 2.1. *Pathways and Agency Interaction Model (Taken from Snyder, 2002)*

A decrease in Hope is expected when unforeseen stressors and obstacles are encountered. Since low-Hope individuals already have insufficient Hope levels, they are particularly sensitive to stressors and the distraction they represent (Snyder, 2002). This distraction might result in an interruption in the goal pursuit process and the individual might develop a belief that he or she will not reach the chosen goal. The stressor becomes an obstacle that will hinder goal attainment. The resulting negative emotions in turn decrease Hope levels even further and result in the individual giving up and not considering alternative pathways (Snyder, 2002). Stressors will be perceived by a high-Hope individual as a challenge which will result in the consideration of alternative pathways. The success of dealing with the stressor will then bring about positive emotions which can influence Hope levels (Snyder,

Harris et al., 1991). An argument (Snyder, 1995) has been made for the existence of a basic Hope level. So when a stressor is encountered there is a decrease in basic Hope, but once the stressor dissipates it should be restored (Snyder, 1995).

At the end of the goal pursuit process a person will experience positive or negative emotions depending on whether or not the goal has been obtained. These emotions influence the individual's perceptions of the value of attainment. Emotions associated with the attainment (or nonattainment) of goals will not only influence the perception of general pathways and agentic abilities, but also situation specific abilities. That is, the emotions associated with successful or unsuccessful goal attainment will influence the person's goal-directed thinking in the future (Snyder, 2002). In the instance of nonattainment, high-Hope individuals utilise the negative emotions associated with failure to improve their thinking. This way if they are presented with similar goals in the future they know what to do differently to bring about attainment. Low-Hope individuals, in contrast, do not use the feedback gained from their failed attempt in a constructive way, instead it serves to increase self-doubt (Snyder, Michael, & Cheavens, 1999).

Benefits of Hope

Over the last 21 years the Hope theory has generated a substantial literature that documents the relationship between higher Hope and better psychological adjustment (Chang & DeSimone, 2001; Feldman & Snyder, 2005), academic performance (Gilman, Dooley, & Florell, 2006; Snyder et al., 2002), sense of life meaning (Feldman & Snyder, 2005), likelihood of finding benefit in adversity (Tennen & Affleck, 1999; Feldman & Snyder, 2005), athletic performance (Curry, Snyder, Cook, Ruby, & Rehm, 1997), and coping with physical illness (Irving, Snyder, &

Crowson, 1998). Therapeutic interventions based on the Hope theory have also received empirical support (Cheavens, Feldman, Gum, Michael, & Snyder, 2006).

As part of the extensive research done on the Hope theory, a positive relationship between Hope and goal attainment has been indicated. Snyder et al. (2000) determined that Hope is positively correlated with achievement outcomes. Psychotherapy has been suggested (Snyder et al., 2000; Snyder et al., 2003) as a way to improve levels of Hope through the strong emphasis placed on the creation of strategies, the setting of goals, as well as, the challenge of negative beliefs about attainment. Snyder (1995) postulated that if interventions aim to increase individuals' agency and pathways, both will also assist in the attainment of goals. Following this reasoning, various studies have linked Hope with well-being. Snyder et al. (2001) found positive correlations between Hope, self-efficacy, and feelings of self-worth. Furthermore, Irving et al. (2004) found that greater levels of Hope were associated with a greater ability to manage distressing emotions and stress. Bailey, Eng, Frisch, and Snyder (2007) also observed that a person's belief in the possibility of achieving goals could result in greater well-being.

Evidence indicates Hope is strongly and positively correlated to mental health indicators. Higher hopefulness is positively associated with positive affect and better overall adjustment (Kwon, 2002), while negatively associated with negative affect and depression (Cramer & Drykacz, 1998). Adolescents with higher levels of Hope have higher global satisfaction and less general anxiety and emotional distress, than their lower Hope counterparts (Gilman, Dooley, & Florell, 2006). Similarly, higher Hope college students have elevated levels of life satisfaction and self-worth even after controlling for coping activities (Bailey et al., 2007; Snyder et al., 1996; Valle Huebner, & Suldo, 2006). Individuals with greater Hope feel more energised,

inspired, challenged, and confident (Snyder et al., 1991). Furthermore, research (Range & Penton, 1994; Roswarski & Dunn, 2009) indicates that greater Hope is related to less suicidal thinking and fewer suicide attempts. Hope is associated with a will to live where the future is seen as controllable, full of possibilities, and where negative emotions and stress are manageable. Conversely, suicidal ideation, which is associated with hopelessness, is the intent to escape the psychological pain (Hanna, 1991; Irving et al., 2004; Roswarski & Dunn, 2009). Interestingly, Snyder (1994) suggests that suicide in itself is a goal driven by Hope, although at a very low level. He proposes that an individual who commits suicide attempts to find an escape from psychological pain (the goal) through the successful implementation of a strategy (pathway) and the energy (agency) to execute it. It is possible that individuals with higher Hope levels perceive stressors as challenges to be overcome and not as insurmountable obstacles (Cheavens, Michael, & Snyder, 2005). This view of stressors enables individuals to use adaptive strategies for coping as opposed to avoidance (Chang, 1998). Adaptive strategies and strong social support networks act as buffers against the negative impact of stressful situations (Cheavens et al., 2005).

Relationships with other variables

There are some similarities between Hope as defined by Snyder (1995, 2002) and other constructs within motivational and personality research. These include optimism, self-efficacy, self-esteem, and problem solving. The similarities and differences between Hope and these models have been reviewed and discussed in previous papers (see Snyder, 2000; Snyder, Rand, & Sigmon, 2002; Snyder et al., 2000). For instance, it has been shown that Hope produces unique variance in the

prediction of other constructs beyond the variance related to optimism (Scioli et al., 1997; Snyder, Cheavens & Michael, 2005) and self-esteem (Curry et al., 1997; Snyder, Cheavens & Michael, 2005). Additionally, Hope predicts positive outcomes even when other variables such as intelligence, optimism, locus of control, and affect are controlled for (Snyder, 1995). Research also shows that Hope provides unique variance in the prediction of well-being, independent of self-efficacy (Magaletta & Oliver, 1999). However, more relevant to the current research are the differences and similarities between PGI and Hope.

2.2.1.3. Comparison of PGI and Hope

Only one previous study (Shorey, Little, Snyder, Kluck, & Robitschek, 2007) utilising a sample of 378 undergraduate participants used both PGI and Hope in the prediction of mental health constructs. Structural equation modelling was used to determine Hope and PGI's empirical distinctiveness. The results indicated that a two-factor model (portraying Hope and PGI as unique but related constructs) fit the data better than a one-factor (combined construct) model. However, when controlling for Hope, PGI did not contribute unique variance to the prediction of mental health outcomes. In light of these findings the authors were very hesitant to provide a decisive conclusion as to the distinctiveness of PGI when compared to Hope. Although the study used a mental health indicator and an optimism scale as measures of well-being, studies in this thesis will make a clear distinction between Hope and PGI's ability to predict hedonic and eudaimonic well-being. Furthermore, instead of using the original uni-dimensional PGI scale, the recently developed PGI-II will be utilised in all the studies presented in this thesis. As such, the first aim of the

current thesis is to investigate the distinctiveness of Hope and PGI, as well as, their ability to independently predict hedonic and eudaimonic well-being.

From the literature reviewed it can be said that PGI and Hope both involve teachable goal-directed processes, setting clear future-oriented goals, developing pathways to those goals, and using the cognitive agency to implement those pathways. Whereas the Hope theory specifies the cognitive process an individual goes through when he or she plans for the future, the PGI theory does not specify a specific process. For instance, PGI does not indicate what would happen if an individual were to encounter an obstacle during the goal process. The affective component of the PGI process was also omitted. Even though Robitschek et al. (2012) mentions that PGI has an affective component, it was never explained how the development of emotions would affect the personal growth process. Conversely, the Hope theory (Snyder, 1995) explains emotions as a consequence of the goal setting process, where positive and negative emotions are the result of perceived success or lack thereof. Although PGI is proposed as a goal-oriented construct (Robitschek, 1998; 1999) no published research has investigated whether PGI has an influence on goal setting and attainment. In previous research (Ivtzan, Chan, Gardner & Prashar, 2011; Barak & Achiron, 2011; Neff, Rude & Kirkpatrick, 2007) PGI was utilised as an indicator of a person's overall inclination to change and develop with no specific focus on how this might be achieved. More recently it has been suggested (Weigold, Weigold, & Russell, 2013) that PGI is a set of skills (Planfullness, Readiness for Change, Intentional Behaviour, and Using Resources) to be utilised in the increase of personal growth. However, inherent to planfullness, the use of resources, and intentional behaviour is the setting of goals. It is thus also

the aim of this thesis to investigate to what extent individuals with greater levels of PGI engage in goal pursuit.

It seems that both PGI and Hope represent cognitive theories that theoretically measure individuals' future-orientation. Nevertheless, there seem to be more similarities than distinguishing elements between these theories. It may be that Hope, as opposed to PGI, enjoyed more research attention since its development and as such there are more unanswered questions about the workings of PGI. This thesis will attempt to answer some of these questions. For instance does PGI relate to specific types of goals; does PGI contribute to goal attainment; is the relationship between PGI and well-being mediated by goals; and lastly what is the relationship between PGI and Hope?

Although gender differences are not the focus of this dissertation it is important to note that previous research found no difference between the mean Hope (Snyder, 2002; Snyder et al., 1991) and PGI (Robitschek, 2003) levels of men and women. Although there are no similarities in the mean Hope and PGI levels of men and women it should however not be assumed that these similarities extend to the relation between Hope and other constructs or for that matter PGI and other constructs. Conversely, there do seem to be some gender differences in personality traits and the extent to which they are displayed by men and women. Although the gender differences on Openness and Extraversion seem inconsistent or small in large, statistically well-powered samples (Feingold, 1994), differences become apparent among specific facets (Costa, Terracciano & McCrae 2001). For instance, women tend to score higher in some facets such as Openness to Aesthetics and Feelings, men scored higher in other facets such as Openness to Ideas. Women scored higher in some facets of Extraversion such as Warmth, while men scored

higher in other Excitement Seeking facet of Extraversion. There also seem to be an elevation of Neuroticism facets among women. Women tend to be higher in submissiveness, nurturance, and negative affect, while being more concerned with feelings than with ideas (Feingold, 1994; Lynn & Martin, 1997). Some result indicate that men tend to be higher in assertiveness (Feingold, 1994) and women higher in Agreeableness (Costa et al., 2001). When considering the dependent variables presented in this dissertation there seems to be a tacit agreement in the literature that men and women do not differ in their levels of SWB (Cummins, 2003; Diener, 1984; Diener & Diener, 1995). There are however some differences in relation to PWB. Research indicate that men and women differ on some but not all the PWB indicators. For example, women score significantly higher than men on Positive Relations with Others and Personal Growth (Ryff, 1995; Ryff et al., 1994).

There is an acknowledgment in this dissertation of the possible gender differences that might exist in some of the constructs or at least some of the lower order facets of these constructs. That being said, gender differences will not be considered in the studies presented in this thesis. There needs to be a consideration of the scope of the studies and their aims. Researchers need to be realistic when designing studies and try to not over reach. That is, there needs to be a careful consideration of the aim of the planned study and the resources available during the implementation of the study. If for instance a researcher over reaches in terms of the scope of a study and falls short of the necessary sample size, any results gained might be questionable due to the study being statistically underpowered. As such, if gender were to be added to the analyses phase of the studies presented in this thesis it is very possible that the inclusion of yet another variable might have a negative influence on the results.

Furthermore, to investigate gender differences a study needs to be constructed and planned in such a way that it allows for the measurement and statistical analyses of facets and not higher order traits. That is, there needs to be a specific focus on the measurement of the various facets that constitute constructs. For instance, Neuroticism consists of two facets, Agreeableness and Extraversion have three facets each, Conscientiousness has six facets, and Openness-To-Experience has two facets. Considering that together the Big-Five personality traits have 16 lower order facets any study aimed at investigating gender differences needs to take this into consideration especially in terms of sample size. The studies presented in this thesis will not be aimed towards the measurement of lower order facets and the desired sample sizes will not provide the desired statistical power necessary.

2.2.1.4. Future-Orientation and Personality

Although Snyder (2002) defines Hope as a learned characteristic that is reinforced by the environment, research show that Hope is related to basic personality traits. In a study conducted by Halama and Dedova (2007) 148 adolescents were recruited to establish how personality characteristics contribute to positive functioning measured as Satisfaction with Life (SWL; Diener, Emmons, Larsen, & Griffin, 1985). The results indicate that individuals with high Neuroticism have lower Hope levels, but found individuals that are high in Extraversion and Conscientiousness to have high-Hope. Upon the inclusion of both Big-Five traits and Hope in a regression model, the results indicate that Hope did not add additional variance to the prediction of SWL. Although including SWL as a measure of well-

being, this study did not include any other measures related to SWB or PWB. It is the aim of the current thesis to expand upon these findings.

The relation of PGIS–II factors to more stable personality traits has only been a focus in one recent study. In this study conducted using 331 undergraduate students Weigold, Porfeli, and Weigold (2013) examined the relationship PGI has on psychological functioning and personality, as well as, vocational identity. With correlations ranging from r = .01 to r = .38 none of the four PGI factors correlated strongly with the Big-Five traits. In the determination if PGI would add to the variance explained in vocational identity beyond that of the Big-Five traits, it was found that only three of the PGI factors (i.e., Readiness for Change, Planfulness, and Intentional Behaviour) made small to moderate contributions in addition to the traits contributions. It was further indicated that PGI explained 49% of the variance in psychological functioning, as measured by the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Although PANAS is an acceptable and widely used measure to indicate individual's positive and negative emotions, the study did not expand their measurement of subjective well-being to include life satisfaction. It is proposed in this chapter (see subsequent section on well-being) that in order to evaluate psychological functioning and all its various facets, both SWB and PWB measures need to be utilised. Furthermore, the study conducted by Weigold, Porfeli, and Weigold (2013) only focused on PGI's possible effect on psychological functioning and did not consider the effect of personality traits. So although the results provide a preliminary indication that PGI does in fact have an effect on positive mental health, it cannot be said to what extent PGI's contribution will remain true after the effect of traits have been controlled for. The current thesis will aim to fill this gap in the literature.

This then raises the question of whether or not human strengths are derivatives of basic personality traits. Following this argument it could be said that these characteristics do not have any special influence on well-being or other manifestations of mental health. Therefore, the relationship could be explained in terms of the effect basic traits have on well-being. Conversely, if human strengths and personality characteristics are relatively independent of personality traits, they should have an independent and unique effect on well-being not explained by traits. This thesis thus contributes to the understanding of how personality characteristics predict optimal human functioning.

Seeing as goals and the attainment of goals are theorised to play such an important role in future orientation a discussion of the goal setting theory will follow. One of the main assumptions in this dissertation relates to the relationship between future-orientation (measured as PGI and Hope) and well-being and whether or not it is mediated by individuals' goals. As the role of personal goals and their contribution to future-orientation has already been stipulated in the above discussion, it is important to establish a theoretical relationship between goal pursuit and well-being based on previous research. The following section of this literature review will focus on the goal setting process, which will be followed by a discussion on well-being.

2.3. GOAL SETTING AND THE INFLUENCE ON WELL-BEING

2.3.1. Personal Goals

Extensive goal research has been conducted in domains such as cognitive, motivational, and personality psychology (Austin & Vancouver, 1996). Hundreds of studies have thus contributed to our knowledge of how different goal types are associated with different behavioural and affective considerations. Although goals and goal setting seem to be familiar and easily accessible concepts, they are in fact highly complicated, multi-dimensional constructs. In their extensive literature review Austin and Vancouver (1996) defined goals as "internal representations of desired states, where states are broadly construed as outcomes, events, or processes (p. 338)." Instead of just being viewed as desired outcomes, personal goals also reflect "personally meaningful objectives that guide perception, emotion, thought, and action" (Marisano, Hirsh, Peterson, Phil, & Share, 2010, p. 256). Locke and Latham (1990) emphasised the importance of goals suggesting that they direct attention to specific tasks, result in the development of task strategies, elicit effort associated with the task, and set the level of task proficiency.

2.3.2. 'What' and 'Why' of Goal Pursuit

An important aspect of motivation involves the reason why individuals engage in certain behaviour. It is proposed that there are different ways in which individuals can regulate their behaviour. Motives for engaging in an activity can be situated along a continuum where individuals can either engage in behaviour out of autonomy and volition or they can feel controlled and pressured to act, think, or behave in a certain way (Ryan & Deci, 2000; Ryan, Kuhl, & Deci, 1997). Intrinsic motivation and

forms of extrinsic motivation that have been well internalised are considered autonomous. Conversely, forms of extrinsic motivation that have been poorly internalised are considered controlled. Intrinsically motivated behaviour can be defined as behaviour that is "not energised by physiological drives…and for which the reward is the satisfaction associated with the activity itself" (Vansteenkiste, Lens & Deci, 2006, p. 20). Extrinsically motivated behaviour can be defined as the engagement in activities with the purpose of obtaining something separable form the activity itself. This type of motivation orients individuals to acquiring external signs of success and self-worth (Sirgy, 1998) and can result in interpersonal comparisons (Kasser, Ryan, Couchman, & Sheldon, 2004). An important distinction is made within the literature between intrinsic and extrinsic goal pursuits which are conceptually different from intrinsic and extrinsic motivation (Ryan & Deci, 2000; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005). The latter refers to individuals' motives and reasons for goal pursuit (the ''why'' of goal pursuit), while the former refers to the content or types of goals individuals pursue (the ''what'' of goal pursuit; see Deci & Ryan, 2000). There has also been an increase in research attention focusing on the '*what'* of individuals' motivation (Deci & Ryan, 2000). That is, there has been increased focus on the specific targets and content of goals. According to Austin and Vancouver (1996, p. 340) goal content is "classifications of outcomes or states that individuals approach or avoid" and can either be intrinsic or extrinsic in nature (Kasser & Ryan, 1996). The various conceptualisations of goal content will be discussed as part of the goal structure in the subsequent section.

2.3.3. Goal Structure

In an extensive review of the goal literature, Austin and Vancouver (1996) suggest that the structure of a goal is associated with the time period in which it needs to be achieved, as well as, characteristics related to the individual and the goal.

First, goals can be influenced by personality factors and aspects associated with motivation. Individuals' motives can reflect an intrinsic or extrinsic orientation depending on the meaning individuals attach to the goals (Buckworth, Lee, Regan, Schneider, & DiClemente, 2007; Ingledew, Markland, & Sheppard, 2004). Intrinsic goals are inherently rewarding (Kasser & Ryan, 1996), stem from individuals' core values (Gillison, Standage, & Skevington, 2006), satisfy their basic psychological needs (Deci & Ryan, 2000), and is consistent with an individual's natural growth tendencies (Kasser & Ryan, 1996). In contrast, extrinsic goals are pursued in order to gain a reward or avoid a punishment and are less satisfying to basic psychological needs. (Sheldon, Ryan, Deci & Kasser, 2004). The Goal-Content Theory (Deci & Ryan, 2000; Vansteenkiste, Niemiec, & Soenens, 2010) identifies goals such as physical attractiveness, social popularity, and financial success as extrinsic because they are directed at external indicators of worth (e.g. fame or wealth). Conversely, goals such as community contribution, self-development, and affiliation are intrinsic due to their focus on the self-actualisation (Vansteenkiste, Soenens, & Duriez, 2008). Research (Sheldon & Elliot, 2000) has indicated that extrinsic goals related to career or finance are less enjoyable, in contrast to intrinsic goals related to relationships and friendships. In early studies on intrinsic and extrinsic motivation, Deci (1971) conducted an experiment where participants were provided with rewards for engaging in interesting activities, that is intrinsically motivated behaviour.

Rewarded participants experienced less enjoyment and showed a decrease in persistence, as oppose to unrewarded participants. Thus, by receiving a reward individuals feel that their autonomy is inhibited. This was further supported by studies that indicated the effect external rewards can have on intrinsic behaviour. Individuals' intrinsic interest can be undermined by testing (Grolnick & Ryan, 1987), surveillance (Enzle & Anderson, 1993), as well as, language that is perceived as controlling (Vansteenkiste, Simsons, Lens, Sheldon, & Deci, 2004). Recent research by Sheldon and Kasser (2008) proposes that extrinsic goals are only problematic when they are valued too greatly. Findings indicate extrinsic relative to intrinsic goals relate negatively to indicators of well-being such as life satisfaction and self-esteem, and positively to indicators of depression and anxiety (Sheldon & Kasser, 2008; Vansteenkiste et al., 2008). Furthermore, extrinsic pursuits relate to less persistence in exercise (Sebire, Standage, & Vansteenkiste, 2009) and poorly to academic performance (Tabachnick, Miller, & Relyea, 2008; Vansteenkiste, Lens, & Deci, 2006).

Goals can also be individually or socially motivated. Social goals are those that focus on the relationships and connections with others, while individual goals focus on individual achievement. Interdependent individuals will be more likely to set social goals, while independent individuals will place value on goals that will result in their own achievement (Van Horen, Pohlmann, Koeppen, & Hannover, 2008). Within the goal orientation theory Grant and Dweck (2003) also characterised goals as either performance or learning goals. Both have diverse effects on performance depending on the skills required to complete a specific task. According to Grant and Dweck (2003) performance goals are set by individuals in order to demonstrate their ability, while learning goals (also called mastery goals) revolve around the

acquisition of knowledge or skills. Similarly, Seijts and Latham (2005) describe goals that require a particular level of task performance as performance goals (e.g. lose one pound a week), whereas goals that require a particular strategy or skill for achievement as learning goals (e.g. develop a nutritional and exercise plan for weight loss). Learning goals are necessary to progress to the point where performance goals can be set to increase performance. Setting performance goals before the required skills necessary to perform the task has been learned can be detrimental to performance. Similarly, setting learning goals for relatively easy tasks is an ineffective use of time and cognitive energy (Kanfer & Ackerman, 1989; Seijts & Latham, 2005; Winters & Latham, 1996). This then brings us to the consideration of intentions in the characterisation of goals.

As such, goals can also be characterised based on goal intention and hierarchy. When goal intention is considered it might result in approach and avoidance goals. Several motivational theories throughout psychology's history used the approach/avoid distinction which suggests that individuals can either adopt an approach or avoid tendency when faced with competence related situations (Carver & Scheier, 1981; Higgins, 1996). When an individual's intention is to achieve a desired future or state it can be classified as an approach goal. On the contrary when individuals attempt to avoid a future outcome or state they perceive to be negative, they might set avoidance goals. Grant and Dweck's (2003) research indicated that avoidance goals can decrease performance and motivation, whereas approach goals can increase performance and motivation.

So when forming a goal orientation two factors are considered, the definition of competence as either mastery (learning) or performance and the valence of competence as either approach or avoidance (Elliott & McGregor, 2001). As such,

one of four goal orientations can develop: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance. With mastery-approach goals individuals seek to develop skills and knowledge while adopting adaptive behaviour when faced with negative feedback. An individual with a mastery-avoidance orientation is a perfectionist who focuses on a mastery standard while avoiding mistakes. Conversely, individuals who adopt a performance-approach orientation believe that ability is difficult to develop and thus focus their effort on managing others' impressions of them rather than developing competency. The final orientation, performance-avoidance, motivates individuals to avoid the demonstration of incompetence and negative judgements. When the hierarchy that goals exist in is considered, higher-order goals are more abstract and based on the individuals' values (e.g. "be a good person"). Lower-order goals are more operant and specific (e.g. "wash the dishes"). As such, lower-order goals relate to everyday tasks, while higher-order goals relate to an individual's principles (Austin & Vancouver, 1996).

Third, goals can have certain temporal characteristics such as the expected time frame in which the goal is to be achieved or pursued. If goals are imminent they are proximal in nature ("passing a test tomorrow" or "going out to dinner with friends"). Conversely, distal goals refer to goals that are more long-term ("visit the Taj Mahal before I die" or "complete my dissertation"). How goals are prioritised can also be viewed as a temporal characteristic. If more than one goal exist simultaneously, it is possible to prioritise in such a way that the most important goal is completed first. Individuals prioritise goals on a continuous basis by taking into consideration the amount of time and effort needed to complete goals, other goal opportunities, and competing priorities (Schmidt, Dolis, & Tolli, 2009). This was

supported by recent research that indicated a relationship between goal priority, personality factors, and behavioural intentions (Geers, Wellman, & Lassiter, 2009).

2.3.4. Elements of Goal Setting

In one of the most comprehensive goal related theories organisational psychologists, Locke and Latham (1990; 2002) identified three essential elements of goal setting. These include characteristics related to the goal itself, mechanisms that influence pursuit and performance, and moderators that influence the relationship variables in goal pursuit.

The first of these elements focuses on the specificity and difficulty associated with the goal. Locke and Latham (1990, p. 119) suggest that “goals that are specific and difficult lead to the highest level of performance.” Goals that are poorly defined are vague (“do you best”), lack definition, and are not quantitative (“I want to lose weight”). Conversely, specific goals can be quantified and have deadlines attached to them (“I want to lose three pounds in two weeks”). Although counterintuitive, research by Lock and Latham (1990) indicates that the more difficult the goal the greater the performance. This is due to difficult goals’ ability to induce greater levels of persistence and commitment. This was supported by a review of eleven studies based on the goal setting theory where Latham and Yukl (1975) found that specific and difficult goals do increase performance. Similarly, a later review (Locke, Shaw, Saari, & Latham, 1981) also supported the assertion that difficult, specific goals improve performance to a greater extent than easy, medium, or “do your best goals.” That being said, there is an exception. Due to research examining the difference between learning and performance goals, it has been suggested that in situations where knowledge of how to perform a task is necessary “do your best goals” and

learning goals result in greater performance than performance goals (Latham, 2003; Latham & Brown, 2006). In contrast, Brown and Latham (2002) found that for individuals who are familiar with a subject matter performance goals result in greater performance than “do your best goals” or learning goals. It is thus generally accepted that performance goals will increase the rate of performance, but only when ability is not in question (Seijts & Latham, 2012).

This then brings us to the second element related to goal setting. The mechanisms that need to be focused on during the setting of goals include goal choice, effort, persistence, and strategies (Locke & Latham, 2002). When personal goals are chosen, the selection can either be intrinsically or extrinsically motivated. This choice will be influenced by perceived ability and aspiration. Individuals who have high aspirations and perceive themselves to have the ability will choose more difficult and complex goals than those who believe they do not have the ability or lack aspiration. Related to this is goals’ ability to direct attention away from goal irrelevant activities to goal relevant activities (Locke, 1996; Locke & Latham, 2002). In addition to direction, goals provide energy needed to persist. As the difficulty of the goal increases the amount of effort spend also increases. If the expended effort can be sustained over time this persistence will have a positive effect on performance. The mere formation of a clear and specific goal will assist individuals in the development of pathways to achieve it (Locke, 1996).

Besides the characteristics and mechanisms of the goal, there are also several moderators. These include commitment, importance, self-efficacy, feedback, and task complexity, all of which affect performance indirectly by influencing other variables relevant to goal pursuit (Locke & Latham, 1990). Although goal commitment influences performance it is something individuals tend to struggle with.

They may be able to picture a desired future but are unable to make an effort to achieve it. According to Locke and Latham (1990), “only an individual who is genuinely trying for a goal can be described as being committed to that goal” (p. 124). An individual’s recognition of the importance of a goal might increase the commitment to achievement. If a goal is deemed to be unimportant individuals might not expend the effort and persistence necessary for success. Likewise, if there is a lack of self-efficacy there will also be less commitment and individuals can select easier goals (Locke & Latham, 2002). Feedback relative to performance also moderates the effect of goals. It may be that the feedback is positive and progress is being made towards the goal or negative with no progress being made. Either way, without feedback there can be no improvements implemented to increase performance (Locke, 1996; Locke & Latham, 1990). Feedback may induce goal setting. That is, in situations where goals have not been set, the supply of feedback may motivate individuals to set goals. When feedback indicates that the original goal has been achieved it may result in the setting of higher goals. It is also possible that feedback indicates the current amount of effort to be insufficient for attainment or progress and as such there might be an increase in effort or change in strategy (Latham & Yukl, 1975). The last moderator that warrants discussion is task complexity. With lower-order goals (everyday tasks) a combination of persistence, effort, and learned strategies are all that is required for attainment. However, these elements are not sufficient for higher-order goals. The latter require the utilisation of problem solving and development of novel, task specific plans in order to ensure attainment. All of these goal characteristics, mechanisms, and moderators come together during the dynamic process of goal pursuit.

2.3.5. The Goal Pursuit Process

Usually an individual pursuing a goal follows a standard process that includes the following. A goal is identified, the process is planned, action is taken, success is evaluated, feedback is considered and possible changes are made. If this process is a success the goal should be attained.

Goal Identification

The first phase of goal setting is one with which individuals often struggle. For instance, individuals might structure their goal ineffectively, choose goals that are not personally relevant, set too many goals, or could choose goals that are too difficult, ambiguous, distal, and conflicting (Austin & Vancouver, 1996; Baumeister & Heatherton, 1996). Recent research indicates goals that are proximal, challenging, specific (Bandura, 2001), and chosen for intrinsic reasons (interest/ personal values) as opposed to extrinsic reasons (expectations of others/ social pressure; Koester et al., 2002; Sheldon & Kasser, 1998) are more likely to result in greater progress and success. Another reason for ineffective goal pursuit is the failure to develop specific action. That is, there is a failure to plan for when goal pursuit will start and how attainment will be ensured, even if obstacles are encountered. Highlighting the importance of panning, Gollwitzer (1999) suggests that implementation intentions can assist individuals in their goal pursuit, because they induce a sense of commitment that obligates the individual to attain the goal. Implementation intentions are an important consideration since they link certain behaviours, situations, and time frames. Due to the planning that takes place beforehand, responses during the goal process are easier and more automatic, reducing the amount of effort spent on continual decision making throughout goal pursuit. In their research Koester et al.

(2002) supported this with findings that indicated implementation intentions moderate the relationship between self-concordant goals and goal progress. That is, self-concordance was linked with greater goal progress when implementation intentions were present.

Implementation

In order to make goals a reality action is required. However, feedback during the goal pursuit process needs to be considered. Feedback is gained during the evaluation of goal progress, as well as, environmental and individual characteristics (Carver & Scheier, 2001). Due to the obstacles that might be encountered especially in the pursuit of multiple goals, the evaluation of progress is very important. The evaluation of goal progress can be used as an indicator of where and how many resources should be allocated in the pursuit of attainment (Schmidt et al., 2009). For example, when considering that individuals with higher Hope levels are better able to cope with obstacles (Snyder, 2002) they might also be better able to allocate more resources to the goal that is the furthest from being achieved and will view these discrepancies between goals and performance as a challenge (Schmidt et al., 2009). It is thus also possible to state that individuals with greater levels of Hope and PGI will seek out such discrepancies because it provides them with an opportunity to grow and improve. Conversely, individuals with lower levels of Hope and PGI will give up when faced with such challenging situations (DeShon & Gillespie, 2005; Robitschek et al., 2012; Schmidt et al., 2009; Snyder, 2002). Throughout goal pursuit the most appropriate behaviour is continually decided upon, as well as, whether or not it is appropriate within a specific environment (Gollwitzer, 1999). Feedback with

regards to success and achievement is also utilised by individuals to judge whether their abilities are adequate (Elliot & Dweck, 1988).

Personality traits such as optimism and self-efficacy are individual characteristics that might have an influence on the goal process. In five consecutive studies Geers, Wellman, and Lassiter (2009) examined the moderating effect of goal priority on the relationship between optimism and goal engagement. The research provided some indication that the performance of optimistic individuals depends on how they prioritise their goals. However, results also indicated that the behaviour of individuals with low levels of optimism is not related to goal priorities. Although the research provided support "that dispositional optimism combines with goal priority to predict action" (Geers et al., 2009, p. 930), dispositional optimism did not independently predict goal engagement or attainment. It is possible that dispositional optimism alters the expectation of success and thus the willingness to invest in high-priority goals. Although this is consistent with the behavioural self-regulation theory (Carver & Scheier, 1998), it is currently an unproven theory. Lock and Latham (2002) also, highlighted the importance of high self-efficacy (as opposed to low-efficacy), stating that it could result in more commitment to assigned goals, a positive response to negative feedback, as well as, the development and use of better attainment strategies.

Goal progress and attainment

Goals can influence performance in one of four ways. According to Locke and Latham (1985; 1990) goals can mobilise effort, prolong persistence, direct attention to the elements of the skill being performed, and contribute to the development of new learning strategies. While much research has been focused on factors that

influence goal selection and pursuit several studies highlight possible outcomes when progress is made toward the attainment of goals. Making progress towards goal attainment can have an influence on affect. In general individuals expect to feel better when they are successful in the achievement of goals. Thus, individuals react positively when progress is made and negatively when they fail (Diener, Suh, Lucas & Smith, 1999). Koester et al. (2002) supported this with data from a meta-analysis of nine published studies, the results of which indicated that greater goal progress results in more positive affect and less negative emotion. Koester and colleagues concluded that there is “an emotional payoff for making progress toward one’s goals” (p. 233). There is also constant feedback between well-being and goal progress or attainment. As goal progress increases well-being, the enhanced well-being can be associated with the construction of more self-concordant goals, resulting in an increase of goal attainment which in turn increases well-being (Sheldon & Houser-Marko, 2001). Individuals who pursue goals that fulfil basic needs and are aligned with the true self (self-concordant) have more need-satisfying experiences which increase well-being (Sheldon & Elliot, 1999). It is also possible that individuals who are able to successfully apply problem-solving skills may be better able to adapt to life changes and sustain their well-being. Previous research (Carver & Scheier, 1999; McGregor & Little, 1998) has clearly established that feelings of competence and confidence with regards to important goals enhance well-being. This may be the consequence of successful experiences in the past that resulted in the belief of competence, as well as, the belief that the necessary abilities for success are present (Emmons, 1986; Westerhof et al., 2006). However, even though perceived goal efficacy can be linked to happiness, McGregor and Little (1998) are of the opinion that the meaningfulness of a goal is a separate issue from efficacy. It is thus

safe to say that the relative integrity of the goal relates to the meaningfulness. That is, the goal has to be self-selected and the individual needs to be internally motivated to achieve this goal. If viewed from a self-determination perspective (Deci & Ryan, 2000) where basic psychological needs (such as autonomy, competence, and relatedness) have to be fulfilled in order for a person to be psychologically well, it would make sense that autonomy, as well as, efficacy would be important for the achievement of greater well-being. Furthermore, commitment to goals can help individuals develop problem-solving skills and coping strategies, assisting them in dealing with adversity (Diener et al., 1999). When personal goals are set with sufficient available resources it can bring about higher satisfaction with life and general subjective well-being (Diener et al., 1999; Diener & Fujita, 1995). Although goal attainment can be associated with positive changes in well-being, it has been found that the pursuit itself can also have a positive effect on subjective well-being (Brunstein, 1993). It is thus not surprising that when a goal is too easy or difficult it is linked to lower positive affect and higher symptoms of depression (Sheldon & Kasser, 1998). The same can be said for low expectations of success. That is, if expectations of success are low it increases negative affect (Emmons, 1986).

Within the context of Hope or PGI, after the initial realisation that changes are required the goals that induce the highest performance and greatest well-being are intrinsic in nature, specific, and challenging. The choice of goal will be influenced by perceived ability and aspirations, with individuals who have higher aspirations and confidence in their abilities setting higher goals. With the increase in difficulty there will also be an increase in effort, which in turn increases performance. Since the recognition of a goal's importance increases persistence there will also be an increase in the output of effort, which will also have positive effect on performance.

Throughout the goal pursuit process performance is constantly evaluated and compared to a set standard. If for whatever reason the feedback gained from this process indicates that performance does not live up to the standard, actions can be taken and changes can be implemented to enhance performance and ensure attainment. Overall, progress made during goal pursuit, perceived self-efficacy, and the attainability of goals can all jointly contribute to a sense of well-being.

2.4. POSITIVE MENTAL HEALTH

2.4.1. Defining Mental Health

Upon close inspection of the title associated with this section of the thesis one could say that it contains a linguistic error or a redundancy of words. Why was the additive “Positive” included in the title? In labelling this section would “Mental Health” not have been sufficient? If truth be told, often when mental health is discussed it is thought about in terms of psychopathology. The term “mental health” has certain stereotypes and prejudices associated with it, so much so, that mental health is automatically affiliated with psychological disorders and their symptoms. It appears that the term “positive” is required as an indication that a reference is being made to the positive aspects of mental health.

It is thus not surprising that research largely focuses on psychological disorders as identified in the DSM-IV (American Psychiatric Association, 2000), with the assumption that remedies for such problems could increase mental functioning (Huppert, 2005). Research attention has thus been aimed at the identification of risk factors associated with psychological disorder and their symptoms, with minimal attention awarded to the reasons for human flourishing. In fact, Maslow highlighted psychology’s preoccupation with dysfunction almost 60 years ago when he stated the following:

> “The science of psychology has been far more successful on the negative than on the positive side. It has revealed to us much about man’s shortcomings, his illness, his sins, but little about his potentialities, his virtues, his achievable aspirations, or his full psychological height. It is as if

> psychology has voluntarily restricted itself to only half its rightful jurisdiction, and that, the darker, meaner half." (Maslow, 1954, p. 354)

This realisation by Seligman and Csikszentmihalyi (2000) resulted in the development of positive psychology. With a focus on positive individual traits the aim is the scientific study of ordinary human strengths that are associated with happiness, fulfilment, and optimal functioning of people, groups, and institutions (Gable & Haidt, 2005; Seligman & Csikszentmihalyi, 2000; Sheldon & King, 2001). This adjustment within the mental health field is in keeping with Word Health Organisation's definitions of health and mental health. The WHO (1948) views health as a "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity", while defining mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (2013)." The distinction is made between the absence of mental disorder, as well as, presence of positive mental health indicators. It can thus be assumed that even the absence of mental disorder does not necessarily result in optimal mental health. Defining mental health as more than just psychopathology or the absence thereof is particularly relevant for this thesis since mental health will be studied from a positive perspective.

Defining and measuring well-being is important since it provides researchers with a means to formulate an idea of what optimal functioning looks like and how individuals develop and maintain it. This knowledge in turn can be utilised by parents, teachers, religious leaders, counsellors, and governments to assist others in the increase of their well-being. A recent example of measuring well-being for

government purposes comes from the United Kingdom (UK). The UK Prime Minister, David Cameron, called upon researchers to provide the government with an indication of the population's well-being (see Office of National Statistics, 2011). The challenge then was to define well-being and measure it in such a way that all the facets of well-being were taken into account. However, to measure an individual's or a nation's well-being a uniformly agreed upon well-being theory should exist, as well as valid and reliable measures that can be utilised to ascertain perceived well-being. However within the field of well-being there is uncertainty and disagreement on this.

The differing approaches in the study of well-being have resulted in obscure and broad definitions of well-being, while researchers use constructs such as 'happiness,' 'life satisfaction,' and 'quality of life' synonymously with 'well-being'. Jayawickreme, Forgeard, and Seligman (2012) also state that some researchers ignore the multifaceted nature of well-being and employ a single construct approach (often life satisfaction), resulting in the omission of other important aspects of well-being. Consequently, researchers (Diener, 2009; Gasper, 2004; Forgeard, Jayawickreme, Kern, & Seligman, 2011) recently started to argue for a multidimensional approach to the process of defining and measuring well-being, which should include emotional, social, and functional components. However, disagreement still persists regarding the components that should be used in a valid well-being theory (Diener, Scollon, & Lucas, 2003).

Although researchers cannot agree on a uniform well-being theory, the research that has been conducted to date provides a clear basis for some of the elements that could account for a person's well-being. A distinction has been made between two broad, complementary perspectives within the field of well-being. Hedonism is the first of these perspectives and refers to well-being as happiness or

pleasure (Kahneman, Diener, & Schwarz, 1999). Eudaimonic perspective views well-being as more than just happiness and proposes that well-being is actualisation, growth, and the realization of a person's "daimon," that is, one's true nature or true potential (Waterman, 1993). Although there is some overlap between these perspectives they do differ at critical junctures.

This section of the thesis will provide the reader with an overview of the two perspectives generally used to define well-being, namely hedonism and eudemonia. There will be a specific focus on the aspects that constitute and differentiate these perspectives. The *dashboard approach* recently proposed by Seligman provides a multi-dimensional approach to well-being that contains both hedonistic and eudaimonic aspects and as such also warrants discussion in this section. However we will start this discussion on well-being, with review on hedonism.

2.4.2. Differing Well-being Perspectives

2.4.2.1. The Hedonic Perspective

Subjective well-being (SWB) acts as an umbrella term to incorporate various components used by researchers within the field of hedonic psychology as a way of evaluating how individuals think and feel about their lives (Diener et al., 1999). These evolutions can include "both cognitive judgments of one's' life satisfaction in addition to affective evaluations of mood and emotions" (Diener et al., 1999, p. 213). There is thus a focus on three components within the SWB approach that together summarise happiness. This includes life satisfaction, the absence of negative mood, and the presence of positive mood. As such, SWB can be operationalised as involving high satisfaction with life, high positive emotions, and low negative emotion (Diener, 1984; Pavot and Diener 1993; Vittersø, 2001).

Aristippus, a Greek philosopher from the fourth century B.C.E., was one of the first to suggest that the goal of life is to experience as much pleasure as possible and that happiness is the accumulation of hedonic moments. A straightforward measure of well-being consists of asking individuals if they are, 'happy.' Although asking this question has face validity, it is unclear what information people utilise to determine their happiness (Forgeard, Jayawickreme, Kern, & Seligman, 2011). By defining well-being in terms of pleasure versus pain or good versus bad, hedonic psychology views happiness as the judgement of life and experiences as either satisfactory or unsatisfactory. Thus, to experience happiness we need to maximise the pleasurable/good experiences and minimise the unpleasant/bad experiences.

Later research produced different views on what it means to be happy or well. One perspective distinguishes between positive and negative affect and views happiness as the balance between the two emotions (Fredrickson, 2003). The need for a distinction between the two affect states is important. For example positive emotions have been indicated as important for the broadening of individuals' behavioural and cognitive states (Fredrickson, 2003), while negative emotions have been linked to depression and anxiety. Although the use of positive emotions as an indicator of well-being is still a matter of debate, it is worth noting that not all individuals are equally capable of experiencing positive emotions. For example, introverts are less likely to experience positive emotions than extraverts (Hill & Argyle, 2001). Consequently, any interventions designed to increase positive emotions will be more beneficial to extraverts. Also, measures of positive affect are more likely to favour extraverts over introverts.

Satisfaction with life is also an important indicator of subjective well-being. From this perspective life satisfaction complements happiness and is viewed as a

more effective indicator of positive functioning (Diener et al., 1985). Life satisfaction is one of the most widely used measures of well-being that assesses how satisfied individuals are with their life. Satisfaction with life differs from asking individuals how they are feeling, in that it attempts to evaluate an individual's global assessment of his quality of life according to a chosen criterion. Because life satisfaction depends on the standards individuals set for themselves some individuals who experience the same circumstances may judge their lives to be more or less satisfying. Other studies view well-being from a more global perspective and measures overall life satisfaction within specific domains such as income, work, sense of community, and social relationships (Diener, 1984).

It has been argued by Diener, Sapyta, and Suh (1998) that happiness is more than just the experience of physical hedonism since it can also be derived from the attainment of goals or other important outcomes. Perceived accomplishment and competence are also influenced by levels of subjective well-being. Accomplishment refers to achievement, success, and mastery at the highest level within a specific domain (Ericsson, 2002). For individuals this would mean reaching a desired state or a specific goal (Heckhausen, Wrosch, & Schultz, 2010; Negru, 2008). Although competence is a closely related construct it refers to individuals' sense of efficacy with regards to their internal and external environment (Ryan, Huta, & Deci, 2008). Competence is also one of the three basic psychological needs specified by Deci and Ryan's (2000) Self-Determination Theory. The SDT will be discussed later in this section as a way of supporting the theory that goals influence well-being.

As with most theories, the hedonic perspective on well-being is also subject to criticism. The first problem is related to the retrospective self-report measures often used to assess happiness, affect, and life satisfaction (Forgeard, Jayawickreme,

Kern, & Seligman, 2011). A downside to using these instruments is that individuals can be influenced by their current emotional state when answering measures to determine how they have felt over a longer period of time. It is thus possible that mood can influence the unbiased results researchers hope to gain from respondents with these questionnaires. Pavot and Diener (1993) argue that this problem mostly occurs with single-item measures, but not for multiple-item measures such as the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Kahneman (1999) also highlighted the fact that individuals are subject to memory biases, in that they may recall their last or most significant experiences best and as such might also influence results. One of the biggest problems with life satisfaction is the fact that it has been used too often as a single measure of well-being, resulting in the neglect of other well-being aspects. Michaelson and colleagues (2009) put it very appropriately when they stated that “it is all very well knowing that someone is satisfied with their life, but the interesting question is why.” (p. 56). In their review of hedonic and eudaimonic well-being research by Ryan and Deci (2001) highlighted two further concerns with SWB. The first concern relates to the validity of SWB and the related constructs used to define hedonism. Another concern is the types of goals and activities that are theorised to promote well-being. Three possible solutions were proposed for these concerns. The first solution suggested by Ryan and Deci (2001) is that researchers accept the hedonic view and perceive SWB as its indicator. It is also possible to accept that SWB operationally defines well-being, but hold a eudaimonic view of what promotes SWB. Thirdly, one could completely reject the hedonic view on well-being, and hold a eudaimonic view.

Despite all the above criticism SWB makes a valuable contribution to our understanding of well-being. Nonetheless, as argued above subjective well-being is

not the only indicator of positive psychological functioning. Although subjective well-being measures can provide important information, various researchers have recognized the need to assess well-being from a multi-dimensional perspective (Gasper, 2004; Diener, 2009; Michaelson, et al., 2009; Forgeard, Jayawickreme, Kern, & Seligman, 2011).

2.4.2.2. The Eudaimonic View

Although SWB has enjoyed much research attention over the last two decades many reject the notion of happiness as the primary indicator of an individual's well-being. As a complementary approach to subjective wellbeing, Ryff developed the theory guided approach to well-being called, Psychological Wellbeing (PWB; Ryff, 1989, 1995; Ryff & Keyes, 1995; Ryff & Singer, 1998). According to Ryff and Keyes (1995) all the concepts used to define and measure SWB are "largely atheoretical" (p. 719). That is, positive psychological functioning consists of more than just affect and life satisfaction.

From a eudaimonic perspective it has been argued that not all experiences associated with hedonic pleasure are beneficial to one's sense of well-being (Waterman, 1993). Ryff and Keyes (1995) distinguish psychological well-being (PWB) from SWB, basing their argument on the fact that well-being is more than just the experience of pleasure or happiness, but is also related to a sense of purpose and positive functioning. It is possible that some outcomes may result in pleasure or happiness, but that does not necessarily mean they contribute to well-being or are beneficial for the individual in question. For example, smoking provides long-term smokers with positive physical and psychological feelings. However, just because these individuals experience these positive emotions does not mean smoking

ultimately contributes to their well-being. The same argument can be made for procrastination. Although, the activities and actions undertaken while procrastinating can be enjoyable, the ultimate result is an increase in stress levels due to the pressure experienced to complete the original project. Hence, when viewed from a eudaimonic perspective, experiencing subjective happiness does not necessarily relate with well-being.

Eudaimonia refers to "the feelings accompanying behavior in the direction of, and consistent with, one's true potential" (Waterman, 1984, p. 16). Similarly, Huta defines eudemonia as “seeking to use and develop the best in oneself, in ways that are congruent with one’s values and true self“ (Huta, 2013, p.1). Thus, instead of assessing the extent to which individuals “feel good”, PWB examines the extent to which individuals are “doing well”, by measuring constructs such as purpose, meaning, flow, and engagement. *Daimon*, refers to an idea or a perfection that one strives to attain, and that could possibly provide direction in one’s life (Ryff, 1989). In the third century B.C.E. Aristotle rejected the idea of hedonic happiness stating that it is a vulgar ideal that denotes humans as slaves to their own desires. Instead he proposed that true happiness can be found in doing that which is worth doing.

According to Waterman (1993), the eudaimonic conception of well-being also requires people to live in such a way that they are true to themselves. Eudaimonia can thus only take place when individuals’ life activities are congruent with their deeply held values and if they fully engage in these activities. This may be associated with feelings of authenticity, since individuals are true to themselves. Waterman (1993) called people that live in such a way “personally expressive” (p. 678). Waterman provided empirical evidence for a strong relationship between hedonic happiness and personal expression. However, both were generated by

different types of experiences. For example, personal expression was strongly related to activities that require challenge and the exertion of effort, but accommodated development and personal growth. Hedonic enjoyment was related to activities that was associated with happiness, relaxation, and the avoidance of problems.

Although some of the earliest work on well-being have emphasised the importance of variables within PWB (Maslow, 1970; Rogers, 1959; 1964), research in psychology has almost exclusively focused on SWB, that is until a multi-faceted theory have been proposed by Ryff (1989). Subsequently, one of the most well-known theories on eudaimonic well-being is Ryff's Psychological Well-Being Approach (Ryff, 1989; 1995; Ryff & Keyes, 1995; Ryff & Singer, 1998). In accordance with Waterman's theory, Ryff (1995, p.100) describes well-being as "the striving for perfection that represents the realization of one's true potential." Psychological Well-Being Theory presents well-being from a multidimensional approach that includes six distinct aspects. See Table 2.3 for a definition of the six well-being aspects as presented by Ryff and Keyes (1995).

Table 2.3. *The six psychological well-being dimensions and their accompanying definitions*

Well-Being Dimensions	Definition
Autonomy	Possessing qualities such as self determination, independence, and self-regulation of behaviour
Environmental Mastery	The capacity to choose and/or create environments so as to effectively manage one's life
Personal Growth	Continued development of one's potential that contributes to a sense of growth as a person
Positive Relations With Others	Having warm, trusting relationships with others
Purpose in Life	Having the belief that one's life is purposeful and meaningful
Self-Acceptance	Positive evaluations of oneself and one's past life

Due to the different views between SWB and PWB, a debate ensued. Ryff and Singer (1998), just as Waterman (1993), challenged the SWB model of well-being for its limited focus on positive functioning and its fallibility as an indicator of healthy living. Conversely, Diener et al. (1998) responded that the eudaimonic model allows for the defining of well-being, but that SWB allows researchers to determine what makes individuals' lives good. It is thus not surprising that these differing definitions

result in diverse examinations of well-being, including its dynamics, causes, and consequences (Ryan & Deci, 2001). Studies have attempted to consolidate these differing theoretical perspectives.

Keyes, Shmotkin, and Ryff (2002) argue that PWB and SWB are empirically distinct, but related constructs. This was indicated in a study utilising a national sample consisting of 3 032 adults recruited from the United States. Both SWB and PWB retain their uniqueness as distinct facets of overall well-being, even though they are correlated. The results indicated that the best fitting model posits two correlated latent constructs, rather than one general well-being factor. These results confirmed findings from previous research (Compton Smith, Cornish, & Qualls, 1996; McGregor & Little, 1998; Ryan & Deci, 2001) and were also supported in subsequent studies (Linley, Maltby, Wood, Osborne, & Hurling, 2009). King and Napa's (1998) theory on the good life perceives happiness (part of SWB) and meaning (part of PWB) as separate components support this view. In another study investigating the relationship among 18 indicators of well-being, Compton et al. (1996) identified two factors, one that could be related to personal growth and another that could reflect SWB. A later study conducted by McGregor and Little (1998) investigated numerous well-being indicators and also found two well-being factors related to happiness and meaningfulness. Beyond the dimensional structure of well-being Keyes, Shmotkin and Ryff (2002) also investigated the personality traits and socio-demographic factors that might influence well-being. Their research suggests that SWB and PWB increase as levels of education, extraversion, conscientiousness, and age increase, but neuroticism decreases.

Along a similar vein as Ryff's well-being theory, Ryan and Deci proposed basic psychological needs as "universal necessities" (Deci & Vansteenkiste, 2004, p.

25). These three needs, outlined in the Self- Determination Theory (SDT), include autonomy, relatedness, and competence. Satisfying these three needs promotes action, optimal functioning, and well-being, while preventing ill-being, passivity, and ineffective functioning (Ryan & Frederick, 1997). The need for competence refers to an individual's perception of control over an outcome or experience. Research (Deci, 1971) found that providing individuals with unexpected positive feedback while performing a task can increase their intrinsic motivation to perform the task. This happens because the positive feedback provides them with a feeling of competence. Negative feedback has the opposite effect, decreasing intrinsic motivation, because it leaves individuals with feelings of incompetence (Vallerand & Reid, 1984). Relatedness refers to the universal need to be connected to, interact with, or experience caring from others (Baumeister & Leary, 1995). The need for autonomy relates to the urge for control, especially control in one's own life and to live that life according to one's own sense of self. Studies conducted on choice found that providing individuals with choices and options increases their intrinsic motivation to complete a task (Zuckerman, Porac, Lathin, Smith, & Deci, 1978). However it is important to note that this does not refer to being independent of others (Deci & Vansteenkiste, 2004). When an individual feels controlled, he or she feels pressured to act, feel, and think in a certain way. Conversely, autonomous individuals believe that they can determine their own actions, feelings, and thoughts. It is thus proposed that individuals who are controlled or autonomous will fall on opposite ends of a motivational continuum, where autonomy is viewed positively and control negatively (Sheldon, Ryan, Deci, & Kasser, 2004).

The SDT largely agrees with the Ryff model with regards to the content of well-being and that well–being consists of being fully functioning, instead of merely

attaining desires. That is, both theories view being autonomous, competent, and related as important principles central to well-being. However, the SDT differs from the Ryff model in that it views these factors as elements that cultivate well-being, while the Ryff model use them to define well-being and measure the outcome of a growth process. Autonomy, competence, and relatedness are viewed as something individuals strive towards naturally and will thus form the basis for human action (Ryan & Deci, 2000). By specifying these needs, a minimal requirement is identified for people to be considered psychologically healthy. However, it also provides a clear standard of what an individual, as well as, the environment can do to enhance well-being, since it provides the three components necessary for an individual to thrive and grow. Ryan and Deci (2001), further posit that being psychologically well requires feeling satisfied with one's life and experiencing more positive than negative affect. The SDT incorporates positive and negative affect (measures of SWB) into their theory, stating that emotions can be used as indicators of an individual's appraisal of life events and conditions. At the same time the SDT also acknowledges that certain conditions or events that enhance SWB might not contribute to eudaimonic well-being. For example, a study conducted by Nix et al. (1999) indicated that succeeding at an activity while experiencing pressure, was associated with feelings of happiness, but not vitality. Conversely, participating and succeeding at activities while feeling autonomous increased both happiness and vitality. For this reason SDT research often substitutes SWB measures with measures of vitality, self-actualisation, and mental health in an effort to assess well-being from a eudaimonic perspective.

Although there is a distinction between eudaimonic and hedonic well-being it is clear that in order for an individual to be considered psychologically well,

researchers and practitioners cannot make exclusive use of just one of these perspectives. It is thus important to consider how these two perspectives on well-being can be combined in a comprehensive understanding and measurement of an individual's psychological health.

2.4.2.3. Dashboard Approach to Well-being Measurement

Martin Seligman (2002) stated that an increase in well-being takes conscious thought and intentional mindfulness. By being mindful, individuals are aware of and pay attention to that which is taking place in the present, in addition to consciously taking action towards positive outcomes. At the basis of this perspective is the belief that people are active and predisposed towards development (Ryan & Deci, 2006). In order to live the good life it is suggested that there should be control over thoughts, in addition to the development of habitual behaviour that could ultimately result in the desired actions. Mihaly Csikszentmihalyi (Csikszentmihalyi & Csikzentmihaly, 1990) put it best when he stated that "those who take the trouble to gain mastery over their consciousness …live a happier life."

In his original Authentic Happiness Theory, Seligman (2002) proposed that there are three pathways to a happy life, two of which do not necessarily contain any positive emotions at all. Seligman acknowledge that the common perception on happiness is that it equals pleasure. That is, by maximising the amount of positive feelings and minimising the amount of negative emotions a person will be happy. There are two problems with this trait called positive affectivity. Firstly it is highly heritable and difficult to increase or change. This is supported by evidence that identical twins are more likely to share this trait than fraternal twins. Furthermore, the most skills (e.g. "mindfulness") can do is to help individuals live in the upper part of

their set range of positive affectivity (Seligman, 2002). The second problem with this view on happiness is that it requires very little intellectual thought. When Aristotle first spoke of eudemonia and referred to pleasure he did not imply thrills and sensations, rather he made reference to immersing oneself in experiences to such a degree that experiences pleasure or what we today refer to as flow. According to Csikszentmihalyi (1996) individuals who experience flow have clear goals and are intrinsically interested in the task at hand. The task presents individuals with challenges that meet their skill level and provides direct and immediate feedback. A sense of personal control is maintained over the activity to such a degree that the individuals merge their actions with their awareness, so that they are completely immersed in what they are doing. The outcome is an increased sense of well-being.

Keeping the differences between hedonic and eudaimonic well-being in mind, Seligman (2002, 2012) proposed a well-being model that contains three routes that could increase an individual's sense of well-being. These three routes include the pleasant life, the good life, and the meaningful life. The pleasant life consists of experiencing as many pleasures as possible and having the skills to enhance these pleasures. The good life requires that individuals know their strengths and for them to utilise these strengths, in their various life domains (e.g. parenting, work, love, friendship, and leisure), to such a degree that they experience flow. And lastly, the meaningful life consists of individuals utilising their strengths in service of someone or something else. Various researchers produced evidence that supports the theory of three different routes to happiness, including Peterson from the University of Michigan and Huta from McGill University.

In one study, Peterson, Park, and Seligman (2005) distributed to 150 volunteers questionnaires containing three sets of questions measuring the pleasant

life, the good life, and the meaningful life respectively. As expected the results indicated that the good life and the meaningful life were both related to life satisfaction. Thus, the more people experience eudemonia or meaning in their lives the more satisfied they are. Surprisingly though, the amount of pleasure individuals experience does not add to their life satisfaction. These findings were supported by Huta and Ryan's (2010) research. Using Csikszentmihalyi's Experience Sampling Method (ESM), Huta followed participants in their daily lives and contacted them at random to find out what they were doing and how they were feeling at that specific time. Two scales were developed to rate participants with regards to hedonic motives (e.g. enjoyment, comfort, and pursuing pleasure) and eudaimonic motives (e.g. development of potential, pursuing personal growth, and contributing to others' lives). The study's results supported Peterson's findings, in that eudaimonic motives are related to life satisfaction, whereas hedonic pursuits are not. The conclusion that can be reached is that successfully pursuing pleasure is not associated with life satisfaction, but if one is successful in pursuing a good or meaningful life one will be more satisfied with life.

Seligman highlighted several problems with his authentic happiness theory. The first of these refers to the word 'happiness' and how it is always connected to being in a cheerful mood. The problem with this is that experiencing positive emotions is not the only requirement for a person to be happy. Furthermore, by associating positive emotions with the other two routes (engagement and meaning), the theory cannot be referred to as a happiness theory, since neither engagement nor meaning refers to how we feel. A second inadequacy is the use of life satisfaction as an indicator of how happy individuals perceive themselves to be. As mentioned before how happy individuals are with their lives depends on their mood

at the time they completed the Life Satisfaction Scale. In support of this Seligman (2012, p. 13) stated that “the mood you are in determines more than 70 percent of how much life satisfaction you report and how well you judge your life to be going at that moment determines less than 30 percent.” Using mood as the golden standard for the measurement of happiness can be problematic since a large majority of the world’s population can be classified as low affectives. These individuals who experience less positive emotions are not necessarily unhappy; they may be more engaged in meaningful activities. The third and last inadequacy highlighted by Seligman is that positive emotions, engagement, and meaning do not exhaust all the elements that people might engage in to increase their well-being. As such, a comprehensive well-being theory will be more diverse in its definition of elements that individuals might engage in to increase their well-being.

In his, book *Flourish: A New Understanding of Happiness and Well-Being*, Seligman (2012) expanded his original theory to include two new elements. The revised theory known as the PERMA theory includes the three elements (positive emotion, meaning, and engagement) from the original theory which are complemented by the inclusion of accomplishment and positive relations.

Individuals pursue accomplishment or achievement even if it “brings no positive emotions, no meaning, and nothing in the way of positive relations” (Seligman, 2012, p. 18). For example, some professional athletes might participate in their sport to win, however if they lose but perform at their personal best it is almost as satisfactory. These athletes participate in the pursuit of positive emotions or engagement. Others might participate only to win and experiencing a loss is devastating. Winning for them is not about the positive emotions, nor the pursuit of engagement, nor the meaning; it is about the accomplishment of being the best, no

matter what it takes. In contrast to the element of accomplishment, positive relations infer that nothing happens in isolation. Every achievement, positive emotion, and sense of purpose is experienced in relationships and in the presence of others. Being in the presence of other people and having the support of friends and family are the best solution for the low points in one's life and the most reliable contributor to well-being (Seligman, 2012).

These elements are described in order to give an idea of their purest form. However, none of these elements are ever seen in isolation or experienced in its purest state. Individuals, who live for the sake of accomplishment, might also feel positive emotions when they win, as well as experience a sense of meaning and engagement. By adding these elements into a well-being theory, Seligman (2012) does not endorse them or prescribe them as the standard that needs to be reached in order to be well. Instead the elements in this dashboard approach attempt to describe what people choose to do. In contrast Ryff's well-being theory and the SDT, provides us with elements that should be present in individuals' lives in order for them to be considered well.

The PERMA is viewed as one of the most comprehensive theories on well-being. It reconciles the differing perspectives on well-being and utilises both hedonic and eudaimonic aspects in the measurement of well-being. However, because such measures are still being developed, there is no consistency in the evaluation of well-being. What is clear however is that just making use of one measure, such as the Life Satisfaction Scale, is not sufficient. Because of the growing consensus among researchers on the multifaceted nature of well-being, various studies have made use of different well-being elements to define and assess well-being. The research being presented in this dissertation supports and makes use of this perspective. Well-being

was assessed from a hedonic and eudaimonic perspective using various scales (Ryff's well-being scale, Satisfaction with Life Scale & SPANE) which will be discussed in the methods section.

Considerable research has examined possible antecedents of well-being, some of which include wealth, relationships, and goal pursuits. Although there are many more antecedents of well-being, the limited space provided within this thesis asks for selectivity. Thus the contribution made by wealth and relationships will be discussed briefly. Although goal setting was discussed in a previous section within this chapter a subsequent discussion will focus on how goal setting and attainment might influence well-being. However before we discuss how wealth, interpersonal relationships, and goals contribute to well-being or lack thereof, we will briefly review the relationship between personality traits and well-being.

2.4.3. Antecedents of Well-Being

There are a few common questions in the field of well-being and personality research. "What types of people are more likely to be happy or well?", "Are there personality factors that can be consistently related to well-being?" and "Can well-being be viewed as a personality factor?"

In a meta-analysis done by DeNeve and Cooper (1998), 197 samples with more than 40 000 adults were analysed with SWB as a criterion variable being compared to various personality traits. The results suggested an association between various personality styles and individual differences within SWB. For example, Extraversion and Agreeableness was consistently positively associated with SWB, conversely Neuroticism were constantly negatively associated with SWB. Since Extraversion is characterised by positive affect and Neuroticism by negative

affect these findings should not be surprising (Diener & Lucas, 1999). Evidence for this argument can be found in the correlation of 0.80 between positive mood and Extraversion and the fact that Neuroticism is indistinguishable from the trait negative mood. As for the remaining Big-Five factors of Agreeableness, Contentiousness, and Openness to experience, the argument can be made that they are less consistently and strongly related to SWB. DeNeve and Cooper (1998) posits that they are more likely to be influenced by the environment. In contrast, Extraversion and Neuroticism might to a greater extent be a function of genetic factors as they are relatively stable across the life span (DeNeve & Cooper, 1998). From the eudaimonic perspective, Ryff and colleagues examined how the Big-Five traits are related to the dimensions of well-being, as defined by the PWB theory. Schmutte and Ryff (1997) found that Agreeableness and Extraversion were linked to positive relationships; Openness was linked to personal growth; low Neuroticism was linked to autonomy; and Extraversion, Conscientiousness, and low Neuroticism were linked with self-acceptance, mastery, and life purpose.

When considering other antecedents of well-being, materialism and wealth are bought into question as life goals that could possibly contribute to a greater sense of well-being. Viewed from a eudaimonic point of view, Kasser and Ryan (1993; 1996) proposed that making material goods, fame, and image a priority cannot satisfy individuals' basic psychological needs or at best can only partially satisfy them. As such, the non-autonomous nature of goals related to wealth, fame, and image maybe linked to a decreased sense of authenticity and lower well-being. Goals that are meaningful and fulfil the basic psychological needs should enhance well-being. Once an individual surpasses the poverty level, goals that relate to wealth should not add much to the enhancement of well-being. Research conducted to investigate the

above hypotheses support the overall theory that pursuing wealth related goals is not associated with higher well-being. According to the research this is true for both developed (United States & Germany; Schmuck et al., 2000) and developing countries (Russia & India; Ryan et al., 1999). Whereas the pursuit of intrinsic goals contributes to well-being the same cannot be said for extrinsic goals. The contribution made to well-being by extrinsic goals, such as wealth, is either non-existent or they contribute to a lesser extent (Ryan et al., 1999; Sheldon & Kasser, 1998). As previously stated this could be the result of the loss of autonomy associated with extrinsic life goals (Carver & Baird, 1998). Ryff et al. (1999) also investigated the impact of poverty on well-being, by using the PWB measures and found a relationship between socio-economic status (SES) and well-being dimensions such as purpose, mastery, self-acceptance, and growth. Ryff and colleagues suggested that the negative effects of lower SES on these dimensions might be a result of social comparisons being made by poorer individuals when they compare themselves with others they perceive as more affluent. It may also be the result of their perceived inability to gain access to resources to rectify the inequalities. In sum, viewed from a eudaimonic perspective although material support can result in greater access to resources needed for self-actualisation it does not appear to make a substantial contribution to well-being. In contrast to the contribution made by wealth to well-being, the importance of interpersonal relationships for the enhancement of well-being has been established.

As previously highlighted some theorists have deemed relatedness so important that they define it as a basic human need that contributes to well-being (Deci & Ryan, 1991), while others propose it as a resilience factor (Mikulincer & Florian, 1998). One would thus expect there to be a strong association between

interpersonal relationships and well-being. In a study investigating this association La Guardia et al. (2000) found that those individuals with whom one experiences attachment security are those who contribute to feelings of competence, relatedness, and autonomy. These findings also suggest that secure attachments enhance well-being, because they represent an environment within which psychological needs can be satisfied. However it is not the quantity of interactions that contributes to well-being, but the quality of these interactions (Nezlek, 2000). An individual who has a more intimate (higher quality) relationship will experience enhanced mental health. According to Reis et al. (2000) this person feels understood, engages in meaningful conversations, and has fun with the individual or individuals in question. Whereas the work reviewed here views relationships as a source of well-being, Ryff and colleagues view relationships as a defining factor of well-being and essential to human flourishing. In their research related to the predictive quality of positive relations, Ryff, Singer, and Love (2004) suggested that health outcomes and physiological functions might be influenced by the kinds of relationships individuals have. For example their findings indicated that positive relations might influence the secretion of oxytocin, which is associated with stress relief and positive mood.

The associations between wealth, relationships, and well-being are important in that they contribute to the theory that certain elements may or may not contribute to an individual's well-being. Although these are not the variables that will form part of the research questions applicable in this thesis, they provide important examples of how certain intrinsic and extrinsic life goals might be associated with well-being. However, elements that are relevant are goals, goal setting, and goal attainment, as well as, its effect on well-being.

2.4.4. The Importance of Goals

There are two reasons for pessimism regarding sustainable increases in well-being. The first is related to the idea that individuals have a genetically determined set point for well-being. While Lykken and Tellegen (1996) suggest that predisposition accounts for approximately 80% of the variance in happiness, a more widely accepted figure of 50% has been suggested by Diener et al. (1999). Circumstances contribute an additional 10% (Diener et al., 1999). Regardless of the specific percentage, these figures suggest that each person has a set level of happiness, from which it might be difficult, if not impossible, to depart. The second source of pessimism relates to hedonic adaptation (Frederick & Loewenstein, 1999) which suggests that gains in happiness are not permanent. Instead individuals tend to adapt fairly quickly to change or new circumstance which will diminish the on well-being (Kahneman, 1999). There is however reason to believe that individuals do not have to accept that their well-being is set and that nothing they do can change that.

In contrast to the above mentioned reasons for pessimism, there are reasons for optimism regarding sustainable increases in well-being. The additional 40% of happiness variance unaccounted for can be attributed to intentional activity. The successful pursuit of intrinsic goals (Kasser & Ryan, 1996) that are internally consistent (e.g., Sheldon & Kasser, 1995) and similar to one's motive, interests, and values (Sheldon & Elliot, 1999) can influence well-being. The results from three studies utilising three samples conducted by Sheldon and Lyubomirsky (2006) provided consistent evidence that intentional activity positively predict SWB and PWB, even after controlling for circumstantial change. This then support the current study's proposal that volitional effort offers a possible route to the increase of well-being. So changing or initiating intentional activities may provide increases to well-

being that is well beyond the influence of the circumstance individuals find themselves in.

There are several ways in which goals can effect positive psychological functioning. First, the small satisfying experiences in the process of goal striving can influence an individual's general emotions and appraisal of personal growth. Secondly, goal attainment can positively influence people's self-concept or life circumstances, and subsequently change an individual's self-evaluation of happiness and growth. Finally, goal attainment might bring about change in an individual's attitudes towards living, and thus a person's well-being. Although research has provided evidence that goal attainment is important for well-being it has also been shown that the mere presence of self-generated goals and perceived goal progress has a positive effect on emotions and well-being (Morisano et al., 2010).

As noted previously in this chapter a central tenet of future orientation is intentional activities in the form of goal setting. Goals provide individuals with mechanisms to change their current situation into a desired situation. That is, they can monitor, evaluate, and adjust their behaviour in such a way that it results in their desired goal. Sheldon et al. (2002) and Rule (1991) argue that by pursuing and attaining personal goals people might be able to make rapid changes in their lives. This was supported by research indicating that goal striving can be a pathway to well-being and personal growth (Sheldon et al., 2002). Steger and colleagues (2008) argue that having and listing your goals can be considered eudaimonic behaviour. Supporting this, research (Pavot, 2008) suggests that various features related to one's goals might have implications for well-being. These include the existence of important goals, progress towards attainment of these goals, and the conflict among

goals. Others (Scheier & Carver, 1993) suggested that the way in which goals are approached might influence well-being.

In summary, wellness should not be viewed as simply the absence of psychopathology. Instead, it should be viewed as positive functioning that can be improved by exposure to environments that empower, the pursuit and attainment of self-concordant goals, acquiring age appropriate interpersonal relationships, cognitions, and coping skills, and the attainment of strong attachment relationships (Cowen, 1991). As the review of the differing well-being theories above suggests, research on well-being tends to fall into two groups depending on the view taken. The hedonic perspective focuses on subjective well-being, defined as greater life satisfaction, more positive emotions and less negative emotions. (e.g., Diener & Lucas, 1999). Conversely, eudaimonia's focus is on psychological well-being which can be defined in broad terms as a fully functioning person (McGregor & Little, 1998; Ryff, 1989).

2.5. SCALE SELECTION

Hope

As an alternative Hope theory Herth's (2000; 2001) conceptualization of hope is influenced and developed within the fields of health psychology, medicine, and nursing. Similar to Snyder, Herth views hope as "a motivational and cognitive attribute that is theoretically necessary to initiate and sustain action toward goal attainment" (Arnau, Martinez, Guzman, Herth, & Konishi, 2010, p. 808). However, unlike Snyder's theory on Hope, Herth is primarily concerned with people's future goals as they relate to psychophysical stressors, medical illness, or interpersonal loss. Since neither of the two studies proposed in this thesis pertain to specific

interventions related to illness, loss, or stressors Snyder's theory seem to be more appropriate. According to Snyder's definition of Hope it is a construct generally employed by most individuals to some extent and as such should be employable in most research settings including the two prosed in this thesis.

There also seem to be obvious similarities between Hope as defined by Snyder (1994) and both optimism and self-efficacy. Although there has been numerous discussions about the similarities and differences between the constructs (Snyder, 2000; Snyder, Rand, & Sigmon, 2002) the main point will be briefly highlighted to clarify Hope as a related yet independent construct. Optimism has been defined as the general expectation that good things will happen (Carver & Scheier, 2002). Although both Hope and Optimism are associated with positive expectations there is a distinct difference between the two theories. The positive expectations associated with Hope are specifically oriented towards the attainment of goals and the perceived ability to sustain movement towards it. Conversely, Optimism relates to general expectations that positive events will occur. Individuals are not seen as the initiators of such events and there is no focus on the specific actions that might be taken to bring about these positive events. So whereas Hope views individuals as entities who have the ability to determine their own future, Optimism views individuals as the recipients of fate. Since the studies presented in this thesis distinctly aim to determine if individuals are able to engage in goal setting and attain those goals Hope seem to be the most appropriate construct. Hope seems to share the most similarities with Self-efficacy. Bandura (1994) defines Self-efficacy as individuals' ability to perform to such an extent that they exercise influence over certain events in their lives. Whereas, within the Hope theory there is an expectation of goal attainment there are no such expectation with the Self-

efficacy theory. That is to say, there is no expectation that Self-efficacy will result in a specific outcome. Furthermore, Self-efficacy is characterised as domain or situation specific with a temporal view of those situations and the efficacy displayed. Conversely, Hope is viewed as enduring, cross-situational, goal-directed thoughts (Snyder, 2002).

PGI

As previously noted in this chapter there has not been extensive work done in the area of PGI and its distinction from other constructs. One of the primary aims of this thesis is to fill this gap in the research. The only previous study known to the researcher where there was an explicit attempt to determine the similarities and differences between PGI and another construct was the work of Shorey et al. (2007). Since this chapter already contain a detailed discussion of this study (see pg.???) and the similarities between Hope and PGI it will not be repeated here.

Based on the evidence mentioned above Hope is considered to be the most appropriate construct for the proposed studies in this thesis. One of the aims of the current thesis is to compare PGI to another future-orientated scale in order to determine how it relates to and differs from other constructs. As such, it is important to choose a well-established future-oriented construct that is not confined to context specific, has appropriated psychometric properties, and is not too time consuming to measure. As already mentioned above, the psychometric properties can be viewed in the results section of the experimental chapters and are deemed to be appropriate. Furthermore, Hope consists of 12 items, eight of which are related to agency and pathways. The other four items are distractor items. The latter is fairly important considering one of the drawbacks of the PGI scale is the fact that the items

within the scale as well as the phrasing might be too repetitive and as such might influence results.

Personality

Eysenck Personality Questionnaire-Revised (EPQ-R) is a 48-item questionnaire measuring extraversion, neuroticism, and psychoticism. One of the most problematic aspects of the EPQ-R is the fact that it presents participants with response options that are either “yes” or “no” for each item. Since the measure does not present participants with a ratio scale on which to measure themselves on each item it brings the reliability of the measure and its ability to provide an accurate indication of an individual’s personality into question. Due to limited resources at the time of study development the researcher only had access to the above mentioned measure and it was therefore the measure utilised in Study 1. In the subsequent study presented in Chapter 4 the Five-Factor model of personality was assessed utilising the 50-item International Personality Item Pool. There are several advantages to utilising a public-domain scale such as the International Personality Item Pool. Firstly, it is cost free. Researchers can choose from over 2000 items readily available via the Internet. Furthermore, scoring keys for IPIP scales are provided. The items of choice can be reworded, translated into other languages, presented in any order, interspersed with other items, and administered on the internet without additional requests for permission.

EMI-2

In the decision on what scale to use in order to determine the exercise goal individuals set for themselves there were two constructs that had to be considered,

participation motives and behavioural regulations. On the one hand behavioural regulations represent what individuals perceive to be the locus of causality of a goal and in an exercise domain can be measured with the Behavioural Regulation in Exercise Questionnaire (BREQ; Ingledew & Markland, 2008; Mullan, Markland, & Ingledew, 1997). That is, individuals are extrinsically motivated if they engage with an activity in order to gain something that can be separated from the outcome of the activity, for instance if they attain some form of reward or avoid punishment of some kind. Conversely, intrinsic motivation is when individuals' engage in an activity for the inherent satisfaction gained from the activity for instance relaxation or pleasure (Deci & Ryan, 2000). However, since the aim of the first study presented in this thesis is not to determine individuals motivation but whether or not they have the ability to set goals and attain those goals there will be a focus on the goal themselves specifically the types of goals they set. Participation motives refers to the content of goals related to a specific domain of behaviour (Ingledew & Markland, 2008). Although various instruments have been developed to measure exercise participation motives, one of the most differential scales are the Exercise Motivation Inventory-II (Markland & Ingledew, 1997) which assesses 14 motives (Affiliation, Appearance, Challenge, Competition, Enjoyment, Health Pressures, Ill-Health Avoidance, Nimbleness, Positive Health, Revitalisation, Social Recognition, Strength and Endurance, Stress Management, and Weight Management) that can be grouped into higher order motives when necessary. The latter measure's scope is much larger when compared to Frederick and Ryan (1993) scale that only distinguish between body-related motives, interest/enjoyment, and competence, as well as the scale developed by Ryan, Frederick, Lepes, Rubio and Sheldon (1997) that only distinguish between social motives, competence, enjoyment, fitness, and appearance.

Even though the EMI-II has the appropriate psychometric properties there are other advantages in the use of this measure. Firstly, as noted above the measure assesses more motives than any of its counterpart thus ensuring participants are presented with more possibilities that might be related to them. Secondly, the scale was developed with the aim of combining the motives into three higher order motives making analysis more practical.

Achievement Goal Orientation

Whereas the aim in Study 1 will be the content of goals the focus will shift during Study 2. Since the study will be conducted in an educational setting the focus will be on developing and demonstrating ability in an achievement situation, essentially the goal orientation of students (Elliot, Shell, Henry, & Maier, 2005). However, also essential is the fact that the measure and theory utilised need to be aimed at a performance setting where the goals are not always intrinsic in nature but are often times extrinsically motivated in that the goal itself it determined by external factors such as the grade needed to pass a module or assignment. One such theory is the Goal Orientation theory by Elliott and Dweck (1988), which was later extended into the Achievement Goal Framework (Elliott & McGregor, 2001). The latter presents a 2x2 achievement goal framework (Elliott & McGregor, 2001) that considers the goal set but also the achievement motivation of the individuals. As such, the latter theory and its associated measure which has appropriate psychometric properties were chosen for Study 2. The measure itself consists of 3 Mastery-approach goal items, 3 Mastery-avoidance goal items, 3 Performance-approach goal items, and 3 Performance-avoidance goal items.

Well-Being Scales

In an attempt to determine which scale to utilise in the measurement of participant well-being it was decided that only one measure would be inappropriate since individuals' well-being cannot be determined by utilising just one well-being scale. Since this chapter already contains a discussion of the difference between SWB and PWB it will not be repeated here. Due to the multifaceted nature of well-being the choice of measures were based on what is considered to be generally excepted good practice in the current well-being literature (Diener, 2009; Gasper, 2004; Jayawickreme, Forgeard, & Seligman, 2012).

It is generally accepted that SWB is determined by measuring both satisfaction with life and positive and negative emotions (Diener, 2013; Linley, Maltby, Wood, Osborne, & Hurling, 2009). The most widely used measure of pleasant and unpleasant emotions is the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). However, more recently Diener et al. (2009) identified several limitation related to the measure and proposed and alternative. The PANAS, according to these authors (Diener et al., 2009), was designed to measure specific aspects of emotional well-being and therefore might assess states that are not necessarily feelings. There are several important positive and negative emotions that are not being measured by the PANAS. In order to address these shortcomings, they developed the Scale of Positive and Negative Experience (SPANE) which distinguishes between Positive and Negative Experience, and the Balance between the two. This measure contains not just broad descriptors for positive and negative feelings but it also measures a number of specific positive and negative emotions that are central to the experience of well-being. In the current thesis SWB was measured utilising the SPANE and a scale

measuring Satisfaction with Life which can be defined as individuals' cognitive judgment of their satisfaction with life (Diener et al., 1985). As a complementary approach to subjective wellbeing, Ryff's (1989) Psychological Well-Being Scale (PWBS) was used. Although the original parent scale contains 20 items for each subscale several alternatives have been developed and include measure with six 14-item scales, six 9-item scales, and six 3-item scales. Considering the number of scales utilised in the studies presented in this thesis the questionnaires consisting of 20 and 14-item scales were rejected. Similarly the 3-item measure was also rejected due to low internal consistency (Ryff & Keyes, 1995). Instead the measure with the six 9-item scales and appropriate psychometric properties was selected.

As can be seen from this literature review chapter, thesis makes reference to various psychological constructs including future-orientation, personality, goal setting, and well-being. At this point, there needs to be an indication of what researchers mean when they refer to a construct and how they decide whether or not a construct is valid in psychological research.

2.5.1. What is a Psychological Constructs?

According to Cronbach and Meehl (1955) constructs are, essentially, inferred and unobservable. For instance, one cannot directly observe extraversion, conscientiousness, intelligence, or any other inferred human trait. Whereas researchers within the physical sciences have an established International System of Units that provides them with a precise indication of the true length of a meter, social science has no such concrete system. Instead, in psychology, researchers infer the existence of traits because in so doing they can use these traits to describe individuals and groups of people with reference to their similarities and differences

(Goldberg, 1995). Within psychology researchers and practitioners consider these constructs to be important because of their potential to explain human behaviour and aid in the understanding of it.

However, the existence of the construct itself is not enough. Psychologists have gradually developed various methods for assessing the validity of a measure. Due to the fact that this thesis does not allow for or warrant a thorough discussion on validation these assessment methods will only be discussed in the broadest stokes. One of the first methods for assessing validation is content validity which refers to the degree to which a measure effectively samples the content of the domain it is propose to represent. Criterion validity refers to the extent to which a measure is associated with other criterion variables which can either be assessed at the same time (concurrent validity), in the future (predictive validity), or in the past (postdictive validity). Construct validity refers to the extent to which a measure adequately assesses the domain it is supposed to assess (Nunnally & Bernstein, 1994).

2.5.2. The 'Why' of Construct Validity.

Cronbach and Meehl (1955) observed that in order to determine if a psychological measure reflects a construct validly there needs to be a test to determine whether scores on such a measure conform to the theory that forms the basis for such a measure. Construct validity is thus used for basic theory testing in psychology. With the test of any theory researchers need to assume the validity of several other theories, referred to as auxiliary theories, which can include theories on measurement (Lakatos, 1999; Meehl, 1978, 1990). A drawback of the latter does mean that negative empirical results could reflect a failure within any number of theories other than the theory at the centre of the empirical test. Due to the latter no

theory is ever completely proved or disproved and therefor it can be assumed that evidence might favour some theories over others depending on the research circumstances. It thus makes it of utmost importance to rigorously test inferred constructs. According to Cronbach and Meehl (1955) rigor refers to not just the reliability of the test construction, design, and method, but also the quality of the hypotheses related to the theory in question (Meehl, 1978, 1990). In order for hypotheses to be considered of high quality they need to ensure the facilitation of ongoing critical evaluation within science (Weimer, 1979). Thus for research related to specific theories to be informative they need to evaluate specific claims made by or related to the theory in question. Such research can undermine theory criticism and remove alternative, competing explanations related to the theory. The validity of constructs thus refer to an ongoing process of scientific discovery, related to not only the underlying theory but also the measures used as indicators of such constructs.

2.5.3. How is Construct Validity Determined?

Construct validation is viewed as an umbrella term that refers to a theory validation process and incorporates various, specific test validation procedures (Landy, 1986; Messick, 1980).

There are many methods in construct validation, which can include studies to investigate the internal structure of a measure, change over occasions, processes specifically related to performance, or studies to determine group differences. Besides the latter Cronbach and Meehl (1955) also highlight that correlation matrices and factor analysis can be used to determine construct validity. In addition to these methods proposed by Cronbach and Meehl, Smith (2005) propose a five-step model for construct validation. This model includes 1) a cautious specification of the

construct in question, 2) an indication of how the construct can be articulated into informative hypotheses, 3) an indication of appropriate research designs that would thoroughly test the hypotheses, 4) an explanation of how research observations from samples relate to predictions, and 5) a revision of the theory and constructs based on the evidence gathered during testing. Smith (2005) is clear that throughout this process critical assessment needs to affect all the steps. In other words, there needs to be an appreciation that construct validation is an ongoing process in which new findings can lead to clarification or alteration of existing theories ultimately resulting in new theories and accompanying measures. Smith's (2005) approach supports Cronbach and Meehl's (1955) work where they proposed that researchers, during the validation process, assume that a certain percentage of test variance is accounted for by the construct in question. This is followed by a generation of testable predictions about the relationship that exist between the measure in question and other variables. If the results and predictions are in alignment the researchers can retain their belief that the test measures the construct. However, Cronbach and Meehl's (1955, pp.193) caution that constructs can only be "adopted, never demonstrated to be correct."

There are two points about construct validity worth noting here. The first relates to construct validation's aim to determine a measure's relation to other constructs to which it should have a positive, negative, or no relationship at all depending on the theoretical background it is based on (Cronbach & Meehl, 1955). That is to say, construct validation is always theory dependent and any statement about the validity of a measure and its relationship with other measures have to match the theoretical predictions about these relationships. According to (Cronbach & Meehl, 1955, pp. 186) the aim of construct validation "…is not to conclude that the

test "is valid" for measuring the construct variable. The task is to state as definitely as possible the degree of validity the test is presumed to have." Despite the importance of construct validation there is no metric that can be used by researchers to quantify the extent to which a psychological measure is a valid construct, although Westen and Rosenthal (2003) recently have made some headway in this regard. Construct validity is usually determined through correlations between the measure of the construct in question and various other measures. The measure in question should be theoretically associated with some measures (convergent validity) and independent from others (discriminant validity). When a measure is described as validated there is an assumption that the variance accounted for by the measure reflects the variance in the underlying construct. Considering that almost all measure have a certain extent of error associated with it, the ultimate aim of researchers is to demonstrate that their measure can account for unique variance. The error associated with measures reflect random error, variance associated with the method chosen, and variance associated with non-random variables that were unintentionally included in a study. For instance, the aim would be to provide evidence that the Hope scale, as a measure of future-orientation, correlates with the Big-Five personality traits. However, there would also be an expectation that after controlling for the influence of personality traits there would be unique variance that could be attributed to Hope over and above the Big-Five personality traits, random error, and method variance.

Campbell and Fiske (1959) recognize the shared method variance caused by considerable similarities among psychological measures and as such they provided a means to assess the validity of measures above and beyond this shared method variance, called the Multitrait, multimethod matrix (MTMM). These advances in

MTMM has also been accompanied by improvement in the application of Structural Equation Modelling to increase the validity of measures and attempts by Westen and Rosenthal (2003) to quantify construct validity. That is to say quantify the fit between observations and hypotheses.

2.5.4. Validation as Defined in This Thesis

The various scales utilised in this thesis have varying degrees of construct validity. Due to a lack of clear structured processes within construct validation, researchers can use any form of the above mentioned methods to determine the validity of the construct in question. For instance, EMI-2 demonstrated factorial validity (Maltby & Day, 2001) and good discriminant validity (Markland & Ingledew, 1997). While research on Hope revealed good factorial (Snyder et al, 1996; Snyder et al, 1991), convergent (Scheier & Carver, 1985), and discriminant validity (Beck et al, 1974) for the Hope scale. Similarly, research (Weigold, Weigold, Russell, & Drakeford, 2014) also indicated factorial, convergent, and discriminant validity for the Personal Growth Initiative Scale – II. There are also indications of factorial validity for the Psychological Well-Being Scale (PWBS; Burns, & Machin, 2009; Ryff & Singer, 2006) and convergent, discriminant, and nomological validity for the Satisfaction with Life Scale (SWLS; van Beuningen, 2012; Pavot & Diener, 1993). Eysenck, Eysenck, and Barrett (1985) also show factorial validity for the Eysenck Personality Questionnaire-Revised (EPQ-R), while research conducted by Goldberg et al. (2006) suggest convergent validity for the International Personality Item Pool Scale.

In their 1955 publication advocating construct validation Cronbach and Meehl propose that a test is never validated, but instead a standard for making inferences is validated. They argue for caution in the use of measures, constructs, and theory

and state that only after substantial research has been done longitudinally can a theory be supported with confidence. Even then the possibility remain that tomorrow's research might render a theory obsolete. Due to ever the changing nature of theory the validation process is never ending. The work in the current dissertation can be seen as an extension of construct validity. In this thesis there will be an investigation of how already existing theories relate to each other, how they differ, and to what extent they make a unique contribution to the science of psychology. Under no circumstance will the results in this thesis be presented with finality. Instead all the findings will be treated as preliminary evidence in the ongoing investigation into constructs identified within positive psychology and its relationship with other better established branches on individual differences such as personality. As argued above construct validation is not a clear cut process with a definite beginning and end. Instead every study and publication within psychology contribute to the validation process since it allows others to launch their own investigations which will produce evidence to either support your finding or disprove it. Either way the process of validation continues. The aim of the current thesis is to contribute to this ongoing scientific conversation.

Chapter 3

STUDY 1: THE EFFECT OF FUTURE ORIENTATED CONCEPTS ON PSYCHOLOGICAL WELL-BEING

3.1. INTRODUCTION

Personality and individual differences research indicates that there are two streams of investigation attempting to identify factors that contribute to the prediction of mental health. The first relates to personality or temperament and the second view relates to human strengths (McCrae, 2011). Whereas personality traits are generally considered to be genetically pre-determined and stable, human strengths refer to constructs that are either self-developed or learned through social observation. There has been some discussion in the literature about the relationship between personality traits and human strengths. Researchers such as Halama and Dedova (2007) and Mascaro and Rosen (2005) argue that that they are not mutually exclusive, rather some relationship exists between the two. Although various human strengths have been identified (e.g., Peterson & Seligman, 2005) the focus of this thesis is future-orientation and, as such, the only constructs that will be discussed in relation to Personality are, Hope and Personal Growth Initiative (PGI).

Due to the review of literature presented in Chapter 2 this introduction to the first empirical study will only provide a brief overview of future-orientation, goal setting, and personality, as well as their possible effects on well-being and goal attainment. Literature presented in this introduction will illustrate the aims of this study. In particular, there will be an attempt to differentiate between Hope and PGI. There will be a focus on determining if goals have a mediating effect on the

relationship between future-orientation constructs and well-being. Furthermore, future-orientation's predictive nature will also be considered in relation to goal attainment, as well as the possible influence of goal attainment on perceived well-being. The current study will also consider the influence of personality. Specifically, the aim is to establish if constructs such as Hope and PGI contribute to well-being even when personality is controlled for. This introduction will thus proceed with a brief overview of future-orientation.

3.1.1. Future-Orientation

The basic premise of future-orientation is simple. When evaluating a current situation an individual might find that they are unhappy with the way things are. Whether they are unhappy with their current employment, salary, living situation, relationship, educational level, or appearance, the point is they are not satisfied. The realisation that they are currently living in an undesired state might move them to question how it could be improved. In order to move away from the current undesired state to a more acceptable one, individuals need to implement certain behavioural strategies.

Although the central tenet of both PGI and Hope is goal setting and attainment (Snyder, 1995; 2002), it is surprising that so little research has been done to understand how these constructs might contribute to goal progress and attainment. The Hope theory has been supported by a sizable literature over the last 20 years, with a focus on academic and athletic performance, physical health, meaning in life, psychotherapy, and psychological adjustment (see Snyder, 2002). Only one previously published article (Feldman, Rand, & Kahle-Wrobleski, 2009) details an explicit investigation into Hope's effect on goal attainment. In a study of 162 college

students and through the use of the Goal-Specific Hope Scale (GSHS) evidence was presented that Hope can predict goal attainment. The results of path analyses highlighted the influence of goal-specific agency on goal attainment. Whereas goal-specific pathways did not contribute to goal attainment, goal-specific agency did. Specifically, the participant's motivational thoughts with regards to their ability to pursue goals had a greater influence on attainment than their ability to develop ways in which to attain the goals. In explaining why pathways did not make a contribution, Feldman et al. (2009) suggested that it may be possible for agency to be the more influential variable. The conclusion reached was that individuals with high-goal attainment had greater Hope levels, while lower-goal attainment was associated with lower Hope. It can thus be assumed that individuals adjust their Hope levels according to their perceived success or failure.

Although individuals with high Hope levels are more effective when it comes to goal attainment, it is also important to note that they derive more pleasure from the goal setting process than low-hope individuals. The reason for this is twofold. Pursuing activities and goals provide hopeful individuals with an opportunity to utilise his or her skills. Furthermore, part of the attractiveness of the goal-pursuit process is the ability of individuals to mark their progress during their journey to goal attainment. As such, high-hope individuals tend to break their goals into sub-goals, providing them opportunities to gain small successes and experience a sense of accomplishment (pleasure) with each step (Snyder, Cheavens, & Sympson, 1997).

It has been suggested that "hope is not just a consequence of goal attainment but a facilitator of goal attainment (Snyder, Cheavens, & Sympson, 1997, p. 111). In a study conducted by Curry et al. (1997) a sample of 106 Division 1 track and field athletes were recruited from various universities. These athletes completed the Hope

Scale at the start of the season, while their coaches indicated each athlete's natural athletic ability. Even after the variance caused by natural psychical ability was controlled, it was found that those female athletes that scored higher on the Hope Scale performed significantly better in their events than their low-hope counterparts. In a second study Curry et al. (1997) used both dispositional and state Hope indicators to reveal that Hope significantly predicts the sports performance of female college runners. This result held even after the shared variance of other psychological state indices related to mood, self-esteem, and confidence was statistically controlled for. In an attempt to establish if hopeful thinking can be taught, Lewis Curry presented a workshop on hopeful thinking to a group of students. The aim was to ascertain whether these students could implement what they were taught about hopeful thinking in various aspects of their lives. The initial results as well as the longitudinal results (1-year follow up) indicated that for the athletes who participated in this workshop there was an increase in the confidence related to their athletic abilities (Curry et al., 1999, as referenced in Snyder 2002). Such results suggest that even if two individuals share the same level of physical ability they can differ in their hope levels and possibly their attainment. Because the thoughts athletes entertain with regards to their abilities can influence their performance, individuals with higher Hope will outperform their lower hope counterparts, all other things being equal. Although these studies conducted in the athletic domain clearly show that higher Hope is beneficial to athletes, these results cannot be generalised to individuals that engage in physical activity for purposes other than being a professional athlete. The current study will thus add to Hope research by investigating whether Hope levels of non-elite athletes are associated with higher goal attainment and an increase in well-being.

Similarly to the construct of Hope, Personal Growth Initiative (PGI) has also emerged in recent years as an indicator of an individual's growth oriented thoughts and actions. In contrast to Hope that has been utilised in research related to goal pursuit and attainment, PGI has been referenced over the last decade in research related to mental health, family functioning, and psychological distress (Hardin et al., 2007; Robitschek & Kashubeck 1999; Whittaker & Robitschek, 2001). No peer reviewed study, to the researcher's knowledge, has used PGI in a performance setting. It is proposed that findings from the current study will contribute to filling this gap in the literature. This lack of attainment related research is surprising considering the amount of similarities that exist between Hope and PGI. For instance, both involve teachable goal-directed processes, setting clear future-oriented goals, developing pathways to those goals, and using cognitive agency to implement those pathways (Shorey et al., 2007).

To the researchers knowledge only one published paper (Shorey et al., 2007) includes both PGI and Hope in the same study. A sample of 378 college students were recruited to take part in a study aimed at determining the latent structure of PGI and Hope utilising Optimism, Psychological Distress and Well-Being as outcome measures. The authors of this paper argued that PGI and Hope are "related but distinct constructs" (p. 1925). The results indicated a latent variable correlation between PGI and Hope of .84. It was also found that both constructs were related to the outcome variables, but that only Hope accounted for a significant portion of the variance when both constructs were entered simultaneously into a model. Based on these findings the authors (Shorey et al., 2007) argued that Hope and PGI are distinct constructs, contradicting an earlier argument made in the same paper, stating that...

> "If hope and PGI are distinct constructs ..., they should independently predict other future-oriented constructs such as optimism, as well as the associated outcomes of psychological distress and well-being. If PGI represents a subset of hopeful goals relating specifically to the change process, however, then PGI may be subsumed within the hope construct and not add to the prediction of these other constructs (Shorey et al., 2007, p. 1920)."

Based on these findings and inconsistent arguments, it can be argued that further research is warranted and that any future research should be more decisive in its conclusions.

As such, with all the similarities between PGI and Hope, the question needs to be asked whether or not they are empirically different constructs making a unique contribution to psychological research. Using the measures for Hope and PGI as an example, one of the first questions researchers have to ask is how these two measures differ from each other with regards to validity and reliability. During the development of these scales validity and reliability were determined and reported (see Robitschek, 1998; 1999; Robitschek et al., 2012; Snyder, 1995; Snyder et al., 1991) and were found to be appropriate for both measures (these are presented in the Measures section). So, if both measures show appropriate validity and reliability, which of these two questionnaires is considered the better future-oriented measure? Guided by this question the current study will examine the differences and similarities between these psychological constructs and measures. With the

indecisive conclusions reached by Shorey et al. (2007), and with no further research indicating differences between Hope and PGI, the current study will endeavour to reach a more decisive conclusion. As can be seen in Figure 3.1 the study will attempt to differentiate between Hope and PGI by investigating their relationship to each other, as well as their contribution to the prediction of individual's Well-Being. As such, this study will attempt to determine if Hope and PGI are independent of each other, and to what extent they contribute independent variance to the prediction of Well-Being.

3.1.2. Role of Goal Setting in Future-Orientation

Although PGI and Hope are considered future-oriented constructs that facilitate cognitions and behaviours related to individual's perceived abilities to grow and change, the only theoretical difference that could be identified between these two constructs, relates to the utilisation of goal setting as a method to bring about change. The Hope theory explicitly refers to goals as a tool to enable individuals to change that which they deem necessary for their well-being, whereas the PGI theory does not explicitly mention goals or how they can be utilised in accomplishing change. Besides the work conducted by Feldman et al. (2009) providing preliminary evidence for the hypothesis that individuals with high Hope can effectively employ goal setting as a behavioural strategy, a search for similar published PGI research on goal setting and attainment did not reveal any research specifically investigating the relationship between PGI and the goal process. While the results presented by Feldman et al. (2009) seem promising, research has yet to explain the specific role goals take on in the relationship between Hope and Well-Being. Thus, as visually presented in Figure 3.1, it is theoretically possible for goals to mediate the

relationship between Hope and Well-Being, as well as the relationship between PGI and Well-Being. Therefore, this study seeks to determine if goals have a mediating effect in the relationship between Hope and Well-Being, as well as the relationship between PGI and Well-Being.

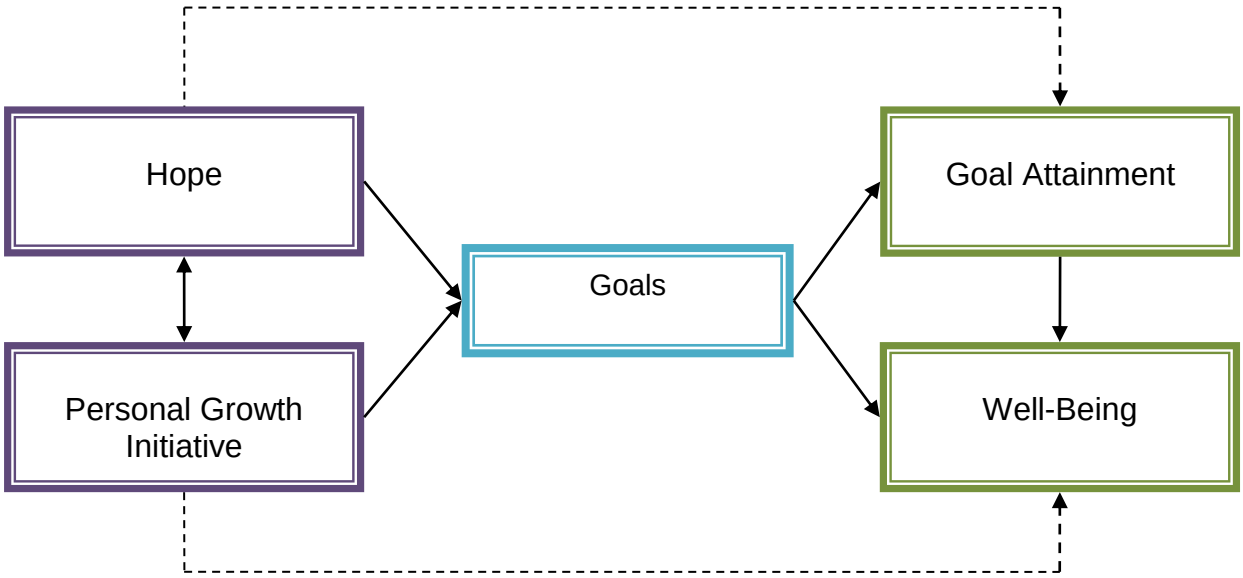

Figure 3.1. *Initial proposed conceptual framework considering future-orientation's influence on goals, goal attainment, and well-being*

Cynicism associated with goals and the setting of goals as a behavioural regulation strategy stems from individuals tendency to state what Latham (2003) refers to as a superordinate goal. Superordinate goals "captures the "heart" because it focuses primarily on affect; it appeals to emotion" (Latham, 2003, p. 309). An example of a superordinate goal relevant to the current study is "losing weight". By stating superordinate goals people give themselves a cause to rally around. The power of an overarching goal lies within the expression of language in such a way that it conveys something for people to believe in. The drawback to enunciating superordinate goals is that it can be empty statements without any real, desired

consequences. As a response to this scepticism a distinction needs to be made between these superordinate goals that mainly appeals to affect and goal setting that is primarily a cognitive variable.

In order to move away from emotional rhetoric to concrete action, superordinate goals need to be more tangible. To do this, goals need to be SMART (i.e. Specific, Measurable, Attainable, Relevant, and need a Time constraint). This is why the performance of individuals who are asked to "do their best" in a task pales in comparison to an individual's performance who set SMART goals. The latter have specific goals that allows them to evaluate their performance, make adjustments where necessary thus increasing their effort and perseverance. Conversely "do your best" goals leave room for individuals to delude themselves into the belief that they are performing well when in actual fact they are not. For example, a goal to "lose weight and tone my body" is too vague to engender behavioural change. However, when this is restated as "I want to lose 5 kg and develop my abdominal muscles", the goals becomes much more specific and measurable.

So in order to create any kind of behavioural change in a specific domain, there is a need for individuals to understand how goal setting can be utilised as a behavioural regulation mechanism to change current, undesired circumstances into desired circumstances. Although there are generally reasons underlying actions, these may be conscious or unconscious depending on an individual's self-awareness (Snyder, 2002; Wade, 2009). Goals are effective for several reasons. They provide targets of mental action and as such attempt to correct the difference between an individual's current situation and desired situation. Goals provide individuals with challenges and a feeling of accomplishment when they deem progress are being made toward goal attainment. Besides providing a way of

measuring progress in relation to the goal, goals can also reduce stress because they provide individuals with a sense of purpose and a clear criterion for individuals to hold themselves and other accountable to. Goal clarity also focuses attention in that it directs attention and effort away from irrelevant activities towards goal relevant activities. Clear goals increase enthusiasm, persistence, and make individuals less susceptible to the effects of anxiety, frustration, and disappointment (Lock & Latham, 2009; Morisano, Hirsh, Peterson, Pihl, & Shore, 2010; Snyder, 2002).

In this study, one of the aims is to determine the influence goals have on the relationship between Future-Orientation and Well-Being. In order to gain an answer this question it has to be researched within a particular behavioural domain. This would provide researcher with a sample of individuals all participating in behaviour within the same domain, all hoping to attain certain outcomes within that domain. In light of this the decision was made to recruit participants from an exercise environment. As such it would be investigated how these exercisers' Future-Orientation influences their Exercise Goals, and how these goals influence their Well-Being.

Both Hope and PGI have been researched in various domains. The nature of the Hope construct means that it should be applicable in all life domains (Snyder, 1991, 2002). For instance, Hope has been researched in both clinical and non-clinical samples ranging from university students to psychiatric patients (see Snyder 2002). More relevant to the current study is the research that has been done in the domain of physical exercise (Snyder 2002) providing support for the hypothesis that high-hope thinking helps individual's engaged in physical exercise to find the best routes to their particular exercise goals while also motivating them to use those routes. Similarly, PGI is the intentional and active desire to grow in areas that are

important enough for individuals to engage in intentional behaviour with the aim of bringing about change in those life areas (Robitschek, 1998; Robitschek et al., 2012). It can thus be said if individuals engage in exercise, this conscious choice is made because of the desire to change, maintain, or prevent something. Following this line of thinking an individual can engage in exercise to change, or for that matter, maintain their fitness or weight or prevent the negative health and psychological consequences associated with a lack of exercise. Since both Hope and PGI are centred on the basis of intentional activity the sample chosen for the current study needs to reflect this intentionality related to the behaviour that they engage in. For this reason it is important to recruit participants that are currently engaged or are planning to engage in intentional behaviour aimed at gaining a specific outcome. As such the aim of the current study is to recruit individuals who are pursuing goals within the same life domain at the same time, more specifically participants who are currently engaging or who plan to engage in physical exercise.

The aim of this study is thus not to determine how participant's dispositional motives, influence their future-orientation and well-being, but instead their participatory motives. Whereas dispositional motives refer to the content of individual's life goals, such as relationships, community, wealth, and fame, participatory motives are "the content of individual's goals for a particular domain of behaviour" (Ingledew, Markland, & Ferguson, 2009). These participatory motives refer to the things individual's aim to either avoid or attain through their participation in the behaviour. In an exercise domain these specific participatory motives might refers to fitness, enjoyment, competence, appearance, and social motives (Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997). The Exercise Motivation Inventory (EMI-2, Markland & Ingledew, 1997) expands on these motives and distinguishes between

14 specific motives for exercise as indicated in Table 3.1. As such the EMI-2 provides researchers with an indication of the content of participant's goals.

Since the sample utilised in the current study will be drawn from an exercise population, the focus throughout this introduction is on research related to some form of physical activity. Although a sample of exercisers will be utilised, the focus will not be on exercise per se, but rather the behavioural strategies involved in the exercise domain, specifically goal setting and attainment. Exercise in general requires individuals to plan their activities and aims, thus it is believed that exercisers would engage in behavioural strategies to a greater extent in order to regulate their behaviour. This then makes exercisers one of a few optimal groups, all engaging in similar behaviour over an extended period of time. Consequently, exercise and its related physical and psychological benefits will not be the focal point of this study. Instead the degree to which participants engage in goal setting and its possible effects on Well-Being will be the focus. That said, it is important to understand the exercise motives some individuals might hold, since it could help explain the role goals play in the relationship between future-orientation and well-being.

Gaining an understanding for the relationship that exists between well-being and the exercise motives held by individuals who exercise on a regular basis could be beneficial as it might point to possible interventions for those who do not exercise regularly (Maltby & Day, 2001). Several theoretical positions that have been applied to the physical exercise domain highlight exercise objects or goals as a central determinant of continuous participation. For example, when applying Ryan and Deci's Self-Determination theory to the physical exercise domain it has been suggested that goals are either extrinsically or intrinsically orientated. Where extrinsic motives are concerned with the achievement of outcomes that are extrinsic

to the participation, intrinsic motives are concerned with experiences of enjoyment, interest, and competence (Ingledew & Markland, 2008; Ingledew, Markland, & Ferguson, 2009).

These different goal orientations also have unique motivational, emotional, and cognitive consequences when utilised by individuals. For instance, extrinsic motives can results in a pressure to perform, tension, and a lack of autonomy, and thus contribute little to long-term participation (Ingledew & Markland, 2008). However intrinsic motives can alleviate pressures, because it provides individuals with a sense of autonomy and the freedom to make their own choices and could contribute to long-term participation (Deci & Ryan, 1985; Ingledew & Markland, 2008). Participation motives such as enjoyment, challenge, skill improvement, and affiliation have been considered as intrinsic, whereas appearance improvement, weight control, and social recognition have been characterised as extrinsic motivation (Frederick & Ryan, 1993, 1995; Markland, Ingledew, Hardy & Grant, 1992). During the development of the EMI, Markland and Hardy (1993; Markland & Ingledew, 1997) drew on Ryan and Deci's Self-Determination theory. As can be seen from Table 3.1 the resulting measure is a differentiated questionnaire considering 14 different motives related to exercise.

In a study to determine gender and domain differences (Kilpatrick, Hebert, & Bartholomew, 2005) with regards to motives for partaking in physical activities, 233 students were recruited. In this study the researchers differentiated between those who engage in sport and those who engage in regular exercise, hypothesising that individuals who exercise for sport or exercise behaviour might differ on a motivational level. The highest motives for individuals who participated in sport were competition, affiliation, enjoyment, and challenge, whereas the highest motives for

individuals who engage in exercise behaviour were health and appearance motives. Based on these findings it is thus possible to conclude that individuals who engage in sport are more intrinsically motivated, whereas individuals who engage in regular exercise are more extrinsic in their motives. The gender based analysis also provided interesting insights. Since weight management was linked more to general exercise than sport, this was found to be particularly true for women. Men were more motivated by motives such as challenge, strength and endurance, competition, and social recognition, thus performance and ego-related factors.

Sheldon et al. (2002) and Rule (1991) suggested that by purposely engaging in the process of pursuing and attaining personal goals people might be able to make rapid changes in their lives. Although attainment is perceived to be the main objective of any goal setting process, it is important to note that attainment is not the only requirement necessary for goals to have a positive effect on individuals. The presence of goals and the perceived progress made can also have an effect. This was supported by research (Emmons & Diener, 1986) conducted on a sample of 21 undergraduate students investigating the effect of affect on situational choices. The results of this study indicated goal attainment to be strongly correlated to positive affect and the lack of goal attainment to be correlated, although less strongly, with negative emotions. It was also reported that the mere presence of goals, deemed important by the students, were just as strongly correlated with positive affect. These findings were later confirmed by Brunstein (1993), who demonstrated that a sample of 93 university students' perceived goal progress induced increased feeling of well-being. The perceived progress made in the attainment of goals, as well as the increase in well-being can in turn increase an individual's sense of self-efficacy (Latham & Seijts, 1999). Later research (Karakowsky & Mann, 2008) also found that

if individuals' increase their participation in goal setting, this will likely encourage them to set more goals and develop higher expectations related to success.

Table 3.1. *Exercise Motivation Inventory-2 Subscales and Sample Items*

Higher Order Factors	Subscale	Sample Items
Appearance/ Weight Management Motives	**Appearance**	To look more attractive
	Weight Management	To stay slim
Social Engagement Related Motives	**Affiliation**	To spend time with friends
	Challenge	To give me goals to work towards
	Competition	Because I like trying to win in physical activities
	Social Recognition	To show my worth to others
Health/fitness Related Motives	**Health Pressures**	Because my doctor advised me to exercise
	Ill-Health Avoidance	To prevent health problems
	Nimbleness	To stay/become more agile
	Positive Health	To have a healthy body
Enjoyment Related Motives	**Stress Management**	Because it helps reduce tension
	Strength & Endurance	To increase my endurance
	Enjoyment	Because I enjoy the feeling of exerting myself
	Revitalisation	Because it makes me feel good

(Ingledew & Markland, 2008; Ingledew, Markland & Ferguson 2009)

Further aims of this study will be to determine if Goal Progress contributes to the attainment of goals and Well-Being. The study will also attempt to establish if

Future-Orientation is predictive of Goal Attainment and whether or not Goal Attainment contributes to Well-Being.

3.1.3. The Influence of Personality

As briefly mentioned earlier, personality traits are largely seen as genetically predetermined, making modification of these traits almost impossible or possible only with great effort (Caspi, Roberts, & Shiner, 2005; Halama & Dedova, 2007; Lyubomirsky, Sheldon, & Schkade, 2005). Conversely, human strengths, such as Hope, are viewed as malleable concepts susceptible to personal and social influences (Halama & Dedova, 2007; Snyder, 2000). This perception is also one of the reasons why limited amount of research has been conducted into the change of well-being (Sheldon & Lyubomirsky, 2006). There is, however, inconsistency in the evidence supposing that personality traits are heritable, unchangeable constructs (see Boyce, Wood, & Powdthavee, 2013; Caspi et al., 2005).

Research conducted by Mascaro and Rosen (2005), has shown that state-hope correlates with some personality traits, specifically, neuroticism (negative correlation), extraversion, agreeableness, and conscientiousness (positive correlations). Mascaro and Rosen only investigated the relationship between state-hope and personality traits, and did not investigate the relationship between personality and trait-hope. As argued by Snyder (2000) trait-hope differs from state-hope, in that hope as a trait stays fairly stable across time and different situations, on the other hand state-hope provides a current indication of motivation and thoughtful planning.

Whereas correlational research (Mascaro & Rosen, 2005) has been done with regards to sate-hope and personality traits, no known published studies have

investigated the relationship between PGI and personality traits. As depicted in Figure 3.2, the current study will attempt to add to Mascaro and Rosen's (2005) research by investigating personality traits relationship with both trait-Hope and PGI. Furthermore, the current research will also aim to establish if constructs such as Hope and PGI contribute to Well-Being even when the variance contributed by personality are controlled for.

Individuals tend to seek situations that are compatible with their personalities, in the absence of compatibility the individual will attempt to correct the dissonance (as cited in Courneya & Hellsten, 1998). It has been argued that personality influences individual's life goals, because goals provide the opportunity to choose and shape the environment individuals live in (Roberts & Robins, 2000). Evidence that different personality traits are associated with different motives for participation have been found in various domains such as alcohol use (Cooper, Agocha, & Sheldon, 2000), sexual behaviour (Cooper, Agocha, & Sheldon, 2000), smoking (Joseph, Manafi, Iakovaki, & Cooper, 2003), as well as the area of interest in this thesis, exercise (Courneya & Hellsten, 1998).

Previous research indicates that personality traits are generally associated with health promoting behaviour and differing reasons (motives) for engaging in the behaviour. Courneya and colleagues conducted several studies investigating the relationship between the Big-Five personality traits and exercise participation. Findings indicate that individuals that are more conscientious and extraverted, with low levels of neuroticism are more likely to participate in exercise (Courneya & Hellsten, 1998). Extraverted, open, and neurotic individuals all indicated that they exercise to some extent for the enjoyment it provides. The results (Courneya & Hellsten, 1998) also showed that neuroticism was the only factor that was correlated

with physical appearance/ weight loss motives, while extraversion was correlated with social reasons for exercise. It may be that exercise provides extroverts with the stimulation, excitement, and socialisation opportunities they thrive on, while individuals who are more neurotic and introverted shy away from such situations. Results (Courneya & Hellsten, 1998) further indicate that conscientious individuals are more likely to exercise for reasons associated with health/stress relief. It is possible that individuals who score higher on the conscientious trait experience more stress which is bought on by their personalities. It is accepted that conscientious individuals tend to be more systematic, determined, and self-disciplined (McCrae & Costa, 1999). This then could mean that they put more pressure on themselves in order to perform at a level they deem acceptable, resulting in their need to exercise in order to improve their health and reduce stress. While the correlational work done by Courneya and colleagues examined the relationship between personality traits and exercise motives, Ingledew and Markland (2008) expanded by investigating the likelihood that certain personality traits and motives for exercise could increase exercise participation. In this study that recruited 252 office workers it was found that, motives related to appearance/ weight had a negative effect on exercise participation, health/ fitness was positively related to participation, and social engagement motives had no effect. Neurotic individuals' were more likely to have appearance/ weight motives, while individuals with high levels of the openness trait were more likely to have health/ fitness motives. This then supports previous findings that suggested extraversion to be positively and neuroticism to be negatively related to exercise participation and adherence (Courneya & Hellsten, 1998, Potgieter & Venter, 1995).

From this it can be concluded that individuals who score higher on the neurotic trait tend to exercise for physical or weight loss reasons, which has a negative effect on exercise participation. Extraverts tend to exercise for social reasons, which have a neutral effect on exercise participation. While conscientious and open individuals tend to exercise to improve their health and fitness, while reducing their stress levels, effectively increasing their exercise participation. From the literature presented it has been established that personality traits do contribute to exercise participation and the motives individuals hold for exercise. Furthermore, exercise has an influence not just on the physical health, but also the mental health of individuals. As can be seen in Figure 3.2, the aim of the current study will be to establish if the relationship between personality traits and well-being is mediated by exercise goals, when Hope and PGI are also added to the mediation model.

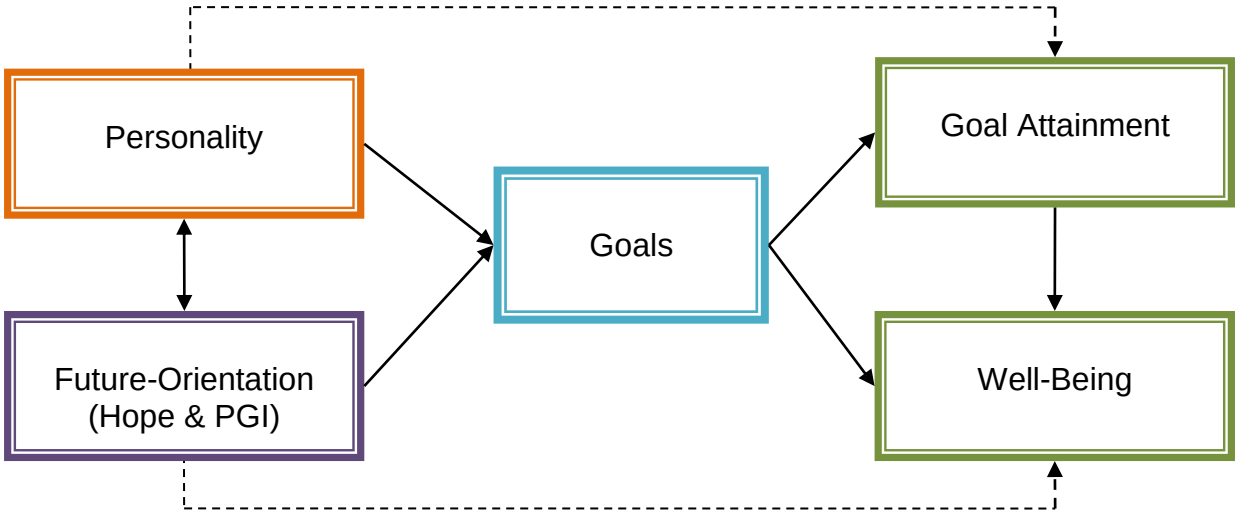

Figure 3.2. *Alternative conceptual framework considering future-orientation and personality's influence on goals, goal attainment, and well-being*

3.1.4. Research Aims

The aim of this study is to gain insight into individuals' Future-Orientation and how this might influence Well-Being broadening our understanding of the relationship between Hope and PGI, and their independence of Personality Traits. Furthermore, the study will also provide an indication of the influence goals might have on the relationship between Future-Orientation and Well-Being, as well as Personality and Well-Being. Due to the complex nature of the relationships between the multiple constructs a Structural Equation Modelling approach will be followed with a specific focus on the utilisation of regression analysis, path analysis, and mediation modelling. These methods and justification for their use will be explored in more detail in a subsequent data analysis section. The focus in this study will be to investigate the following hypotheses:

Hypothesis 1a. Hope and PGI will be independent of each other.

Hypothesis 1b. Hope and PGI will contribute independent variance to the prediction of Well-being.

Hypothesis 2a. Goals will have a mediating effect in the relationship between Hope and Well-Being.

Hypothesis 2b. The relationship between PGI and Well-Being will be mediated by goals.

Hypothesis 2c. Goal Progress will contribute to the attainment of goals.

Hypothesis 2d. Perceived Goal Progress will contribute to long-term Well-Being.

Hypothesis 2e. Goal Attainment will contribute to long-term Well-Being.

Hypothesis 2f. Future-Orientation is predictive of Goal Attainment.

Hypothesis 3a. Hope and PGI will have relationships with Personality Traits.

Hypothesis 3b. Hope will contribute variance to the prediction of Well-Being, independent of Personality Traits.

Hypothesis 3c. PGI contribute variance to the prediction of Well-Being, independent of Personality Traits.

Hypothesis 3d. Goals mediate the relationship between Personality Traits and Well-Being, while future-oriented constructs Hope and PGI are controlled for.

3.2. METHOD

Based on the preceding introduction it can be concluded that the study presented in this chapter will attempt to differentiate between Hope and PGI by not just investigating their relationship to each other, but also their unique contribution to the prediction of Well-Being. There will also be a focus on determining if goals have a mediating effect in the relationship between Future-Orientation (measured as Hope and PGI) and Well-Being. Because of the perceived importance of goals in the relationship between Future-Orientation and Well-Being, Future-Orientation's

predictive nature will also be considered in relation to Goal Attainment, as well as the possible influence Goal Attainment might have on perceived Well-Being. Besides the possible effect of Future-Orientation on the presence of goals and goal attainment and how this might influence Well-Being, the current study will also consider the influence of personality. Specifically, the aim is to establish if constructs such as Hope and PGI contribute to Well-Being even when personality is controlled for. The purpose of the subsequent section is to describe and identify the individuals participating in this study, explain the plan for data collection, discuss instrumentation, and outline the research procedure and considerations.

3.2.1. Population and Sample

Three hundred and nine individuals were recruited during initial testing; however this was ultimately reduced to 264. Forty five participants were excluded due to incomplete measures or missing data (see Figure 3.3). The sample comprised 173 women and 91 men, with a mean age of 26.06 (SD = 10.56, range 16 – 71 years). The sample included individuals that engage in regular physical exercise and were recruited from Abertay University (4.5%; 12 participants), gymnasiums in and around Dundee (8%; 21 participants), as well as online (87.5%; 231 participants). The sample at the second testing was 77 and comprised 57 women and 20 men. The sample at the third testing was 64 and comprised 48 women and 16 men.

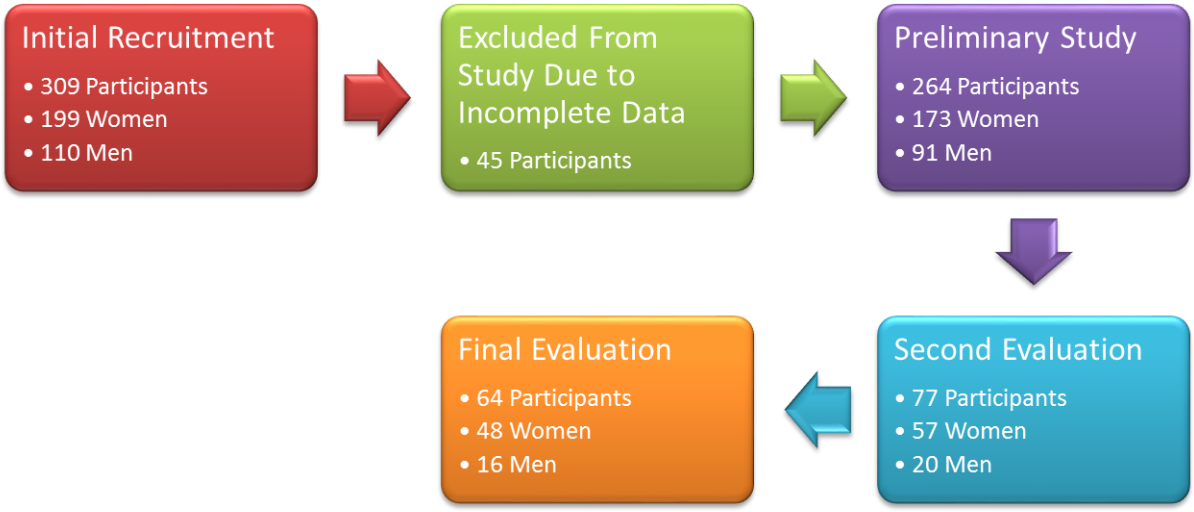

Figure 3.3. *Participant flow from recruitment through to the final longitudinal evaluation*

3.2.2. Statistical Power and Sample Size

Since it is estimated that various statistical analyses will be conducted to determine the correlations between variables as well as their predictive ability it is important to consider the sample size that will be required in order for the statistical results to be based on sufficient power. To estimate the sample size that will be required in this study priori power analyses will be conducted using the software package, G*Power (Faul, Erdfelder, Buchner, & Lang, 2009). Sample size estimation is dependent on several elements coming together, the alpha level (α), effect size, predictive power, and whether a one or two-tailed statistical test is used.

Considering the correlational analyses that will be conducted in this chapter the effect size required will be determined using the following recommendations proposed by Cohen (1992, 1988); r = .10 (small effect); r = .30 (medium effect); r = .50 (large effect). With an alpha of .05 and a large effect of .50, the projected sample size needed for a large estimated power (1 - β) is approximately 26 participants.

When considering regression analyses the recommended effect sizes used for this assessment were as follows: small (f^2 = .02), medium (f^2 = .15), and large (f^2 = .35; Cohen, 1992, 1988). The alpha level used was $p < .05$ and estimated power (1 - β) was .80. The analysis revealed that in order to conduct a regression analysis with a five predictor variable equation, an alpha level of $p < .05$, an effect size of .35, and estimated power (1 - β) of .80, a sample of at least 43 will be required. Using similar criteria it was determined that in order to conduct an Independent Samples T-Test a sample of 14 should be sufficient. Taking all the above into consideration a sample size of 50 will be adequate for the main objectives of this study. However, the difficulty in sample size estimation for this study stems from the utilisation of exploratory and confirmatory factor analyses, as well as the fact that this is a proposed longitudinal study and as such attrition is expected.

Sample size estimations will thus take into consideration the above mentioned a priori analyses but also several recommendations made for EFA and CFA. Since G*Power, or any other statistical power analysis tool, do not have the facilities to determine an adequate sample size for EFA or CFA it was decided to base the current sample size on recommendations made in the social science literature. Several of the most frequently cited guidelines for EFA sample size consider absolute numbers or ratios. Some of the earliest suggestions were made by Cattell (1978) who suggested three to six subjects for each variable, while Gorsuch (1983) suggested a ratio of at least five. There were however some authors (Everitt, 1975; Nunnally, 1978; Costello & Osborne, 2005) who recommended a subject to item ratio of 10:1. Gorsuch (1983) and Kline (1994) suggested sampling of at least 100 subjects. When considering the rule of thumb that suggests a 10:1 ratio and the fact that at the most 6 variables will be used in an EFA in this study, it can be assumed

that a minimum sample of 60 will be sufficient. The 10:1 ratio suggested for EFA has also been proposed for CFA. Several authors support the assertion that 10 participants for every free parameter is sufficient (Schreiber, Stage, King, Nora, & Barlow, 2006, Kline, 1998, Norman & Streiner, 2004). In a CFA the simpler the model and the larger the sample the lager the value of the χ^2. However, there are several problems with χ^2. First, a non-significant χ^2 does not necessarily mean that there may not be a model that better fits the data, instead it suggests that the model in question fits the data closely enough. Second, the χ^2 is greatly affected by the sample size of the study. If the sample size is too low it might result in standard error's that are large and as such increase the difficulty of finding a difference between the model and the data. Conversely, if the sample is too large, the possibility exist that even small differences between the model and the data can result in statistical significance (Norman & Streiner, 2004). It is thus important to find a balance between the CFA's requirement of a big sample and the need for a sample size that does not result in a significant χ^2 where there is none. In this study the 10:1 ratio will be utilised. Considering that the biggest CFA model proposed in this study will have 6 free parameters the minimum sample size needed will be 60 participants. When considering mediation analyses that is conducted through the utilisation of bootstrapping with 95% confidence intervals it has been recommended by Fritz and MacKinnon (2007) that a sample size needed for a power of .80 with a medium effect size would be 78 participants.

Considering the above arguments and results the aim during recruitment will be a minimum of 150 participants. This minimum sample size takes into consideration the previously suggested sample sizes while also allowing for a sample big enough to accommodate expected attrition. That being said, it should be

acknowledged that the bigger the sample recruited the better since there might be a loss of participants due to attrition and insufficient data.

3.2.3. Study Design

This study made use of a longitudinal design to explore the relationship between future-orientation, goal setting, and well-being. Specifically, participants completed various psychological measures over a course of four months, at three different time points (see Figure 3.4).

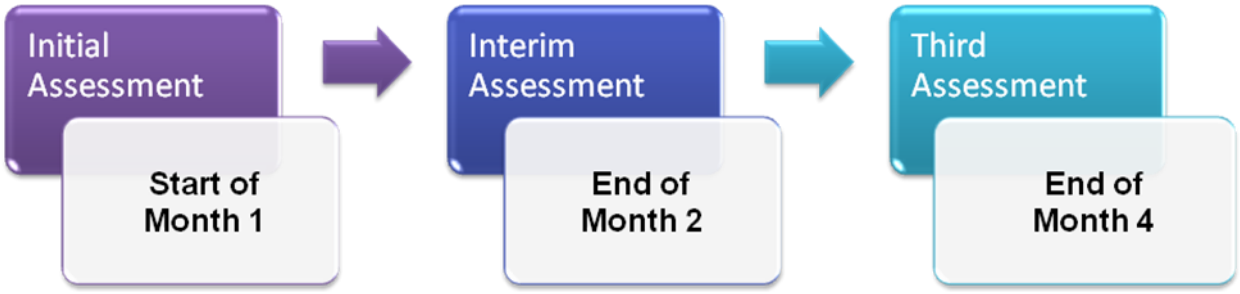

Figure 3.4. *Research time points over a four month period*

3.2.4. Recruitment strategies

As mentioned above the current study did not just make use of direct testing, but included online recruitment methods. Participants were also recruited from a group of first year psychology students at Abertay University. As part of the Research Methods in Psychology (PS0711a) module, first year psychology students are required to participate in four research studies over a one year period. Participation in these studies was worth 10% of the students' final grade. Although participation is mandatory, students chose from a pool that contained various research studies conducted by the staff of Abertay University. The current study formed part of this research pool. Participants were also recruited from various

gymnasiums in and around Dundee. It was also decided to make use of online recruitment, as this method has various advantages. Making use of online recruitment provided the researcher with more recruitment possibilities, because it ensured that the researcher was not just limited to the city of Dundee or even Scotland. Online recruitment meant that participants from other countries also participated in this study, ensuring that the sample is a diverse group of individuals.

By incorporating an electronic version of the questionnaire participants were provided with more testing options, as they were informed during recruitment that they could either complete the paper questionnaire or the electronic questionnaire. Furthermore, because of the longitudinal nature of this study the electronic version of the questionnaire made it easier for participants to participate. The electronic questionnaire ensured that the researcher did not have to meet with the participants on three different occasions. Instead the participants completed the questionnaire in their own time, when it was convenient for them. The downside to online recruitment is incomplete questionnaires that result from participants starting the questionnaire but not completing it. Also, longitudinal online studies have a high attrition rate, where participants would start the study, but not participate in the subsequent evaluations.

3.2.5. Preparatory Analysis

In a preparatory pilot study 33 exercisers (20 men and 13 women) were recruited with the aim of investigating their exercise goal content. They were presented with the Exercise Motivation Inventory (EMI-2; Markland & Ingledew, 1997) which contains 51 items that measure 14 motives for exercise: Stress Management, Revitalization, Enjoyment, Challenge, Social Recognition, Affiliation,

Competition, Health Pressures, Ill-Health Avoidance, Positive Health, Weight Management, Appearance, Strength & Endurance, and Nimbleness. The primary aim of this pilot study was to shorten this measure to a more manageable pool of items. As the proposed study in this chapter will be questionnaire based it is deemed important to present participants with questionnaires that are absolutely necessary for the purpose of testing the proposed hypotheses. It is also important to include the shortest version of a measure without loss in validity and reliability. This analysis thus attempted to reduce quantity without compromising on quality.

The shortening of the EMI-2 was done in accordance with previous research (Ingledew & Markland, 2008) where higher-order motives comprising various items were determined. The data gathered were analysed using Principal Component Analysis (PCA) with orthogonal rotation (varimax) in order to gain an understanding of how the 14 motives factor onto the various components. As it is important to have variables that correlate fairly well (but not too well) with each other (Field, 2009), an initial examination of the correlation matrix resulted in the exclusion of four motives. These motives (nimbleness, ill-health-avoidance, positive health, and appearance) were excluded due to their small correlations ($r < .3$; Field, 2009) with other variables. A second PCA was conducted on the 10 remaining motives with orthogonal rotation (varimax). The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy, KMO = .66 ('mediocre' according to Field, 2009), and the KOM values for individual items were > .65. As the required limit is .5 this is acceptable (Field, 2009). Bartlett's test of sphericity χ^2 (33) = 145.75, $p<0.001$, indicate all the correlations between the motives to be sufficient. An analysis was run to obtain Eigenvalues for each component in the analysis, which resulted in three components that had Eigenvalues over Kaiser's criterion of 1 (2.77, 2.383, & 1.894 respectively).

Combined they explained 70.52% of the variance. The scree plot was unambiguous, also indicating the retention of three factors. Taking into account the scree plot and Kaiser's criterions, three factors were retained. Table 3.2 shows the factor loadings after rotation. The motives that cluster on factor 1 suggest a factor that represents social motivation, factor 2 represents psychological motivation, and factor 3 can be expressed as physical motivation.

Considering the EFA is a statistical analysis that require a fairly large sample, the small sample size utilised in the current EFA might result in the statistical analysis being underpowered. The most frequently cited guidelines for EFA sample size considers either absolute numbers or ratios when determining the most appropriate sample size. Cattell (1978) for instance suggested three to six subjects for each variable, while Gorsuch (1983) suggested a ratio of at least five to one. There were however some authors (Everitt, 1975; Nunnally, 1978; Costello & Osborne, 2005) who recommended a subject to item ratio of 10:1. Gorsuch (1983) and Kline (1994) also made some suggestions about absolute sample numbers suggesting at least 100 subjects for a study utilising EFA. When considering the rule of thumb that suggests a 10:1 ratio, the fact that this pilot analysis had 8 variables with just 33 subjects makes the utilisation of an EFA and the results questionable. Although the results support previous findings (Ingledew & Markland, 2008, Markland & Ingledew, 1997) they should be considered as preliminary and as such can form the basis for future research.

As such, the small sample size made it essential to confirm the three factors. This was done by assigning each individual to a motivational category according to their highest motivational mean in either the social, physical, or psychological motive category. It was found that the majority of individuals (93%) could clearly be grouped

within one of the three categories based on their highest motivational mean. It is however important to note that 6% of the participants could not be classified, as they had similar means in two of the motivational categories. The assumption can thus be made that the three factors are valid categories and can be utilised for further analysis.

This preparatory analysis also provided the opportunity to test the proposed methodology for the longitudinal study. The researcher had the opportunity to interact with gymnasium members and managers, thus gaining an indication of how forthcoming they would be with a similar study and the recruitment of participants from their gymnasiums. It was concluded that although some gymnasiums were open to research being conducted utilising their members, not being able to ask participants on the day of recruitment to complete the questionnaire booklet, but instead allowing them to take it home would hinder the response rate. Consequently, the decision was made to also include online requirement. The study was thus posted on various psychological websites that allow for the recruitment of participants.

Table 3.2. *Summary of explanatory factor analysis for the Exercise Motivation Inventory (N = 33).*

	Rotated Factor Loadings		
Item	Social Motivation	Psychological Motivation	Physical Motivation
Social Recognition	**.843**	**.051**	-.020
Challenge	**.779**	**.418**	.095
Competition	**.761**	**.227**	-.339
Affiliation	**.746**	**.027**	-.117
Revitalization	.051	**.895**	-.181
Enjoyment	.265	**.835**	-.330
Stress Management	.148	**.804**	.369
Health Pressures	.062	**-.027**	**.801**
Strength Endurance	.462	**-.027**	**-.687**
Weight Management	-.093	**-.088**	**.604**

Notes: N = 33. Variance explained = 70.52%

3.2.6. Measures

The research measures were presented to participants in the form of a pen and paper questionnaire or an online survey. A description of each measure is provided in detail below. All measures used in this study were scored as indicated by the instructions provided by the researchers who developed each measure. In order to view examples for each of the measures refer to Appendix C.

Demographic Information

In this questionnaire participants were asked to indicate their age, gender, and how long they had been exercising.

Self-Set Exercise Goals

Participants were asked to report three exercise goals that they wanted to work on during the next four months. They were provided with space on the questionnaire to nominate three exercise related goals. An item was also provided where participants could indicate the absence of goals.

Exercise Motivation Inventory (EMI-2)

The EMI-2 (Markland & Ingledew, 1997) includes 51 items measuring 14 motives for exercise. The stem for this questionnaire was as follows; ''Personally, I exercise (or might exercise)…''. Each item on the EMI-2 is written as a statement concerning the reasons people often give for exercising. Response options range from "Never" (0) to "Repeatedly" (4), where higher scores indicate stronger reasons. Sub -scale scores are derived from computing the mean score of the items that make up each sub-scale. These scales can also be combined, reflecting dimensions: psychological motives, interpersonal motives, health-related motives, body-related motives and fitness-related motives. Each of the scales on the EMI-2 demonstrated good internal reliability, ranging from 0.69 to 0.95 and there is strong support for factorial validity (Maltby & Day, 2001). Internal reliability statistics for all the sub-scales exceed .71 (Maltby& Day, 2010) and the scale has been shown to have good discriminant validity (Markland & Ingledew, 1997). Based on the preparatory analysis a shortened version of the EMI-2 was implemented in this study.

Personal Growth Initiative Scale-ll (PGIS-ll)

Personal growth initiative was first measured with a 9-item, single-factor measure called the Personal Growth Initiative Scale (PGIS; Robitschek, 1998, 1999). The Personal Growth Initiative Scale – II (PGIS-II; Robitschek et al., 2012) is a new multidimensional measure of PGI. The PGIS-II is a 16-item measure with four subscales: Planfulness, Readiness for Change, Using Resources, and Intentional Behaviour. Response options range from 0 = Disagree Strongly to 5 = Agree Strongly. Subscale scores is the mean response value for items on a specific subscale. The total score is calculated by summing the subscale scores and then dividing by 4. Previous research (Robitschek, Ashton, Spering, Murray, Shotts, & Martinez, 2009) reported test–retest reliability ranging from .62 - .77 over a 6 week period and adequate reliability evidenced with internal consistency indicators of 0.90 and above.

Trait Hope Scale

The Trait Hope Scale (Snyder et al., 1991) comprises of four distracter items, 4 pathways items and 4 agency items. Response options range from 1 = Definitely False to 8 = Definitely True. Because the Hope scale measures hope as a trait, individuals are asked to imagine how they would react and feel in various situations over long periods of time. The agency and the pathway subscale scores are derived by adding all the items in each subscale. The total Hope Scale score is derived by combining the agency and pathway subscales scores. The overall Hope factor consists of two separate, but related factors e.g. agency and pathways (*r* ranging from .38-.69, with a modal r of .5 across many samples). Reliability was established at both an internal and temporal level (Snyder, 2002). Internal reliability was

confirmed for the overall scale (alphas ranging from .74-.88), the agency subscale (alphas ranging from .70-.84) and the pathways subscale (alphas ranging from .63-.86). Temporal reliability was established with test-retests ranging from .85 for 3 weeks to .82 for 10 weeks.

Eysenck Personality Questionnaire-Revised (EPQ-R)

This 48-item questionnaire provide scores for the personality dimensions of Extraversion, Neuroticism, Psychoticism, and social desirability (lie scale). The 12 lie scale items measures how socially desirable you are trying to be in your answers. The 12 extraversion items measures how much of an extrovert participants are, the 12 neuroticism items measures how neurotic participants are and the 12 psychoticism items measures the socialisation of participants. The response options included a choice between "yes" and "no" for each item. The responses are then either coded as "0" or "1" depending on their responses determined by the scoring key provided by Eysenck, Eysenck, and Barrett (1985). This short scale EPQ-R has reported reliabilities for males and females respectively of 0.84 and 0.80 for Neuroticism, 0.88 and 0.84 for Extraversion, 0.62 and 0.61 for Psychoticism, and 0.77 and 0.73 for the Lie Scale (Francis, Brown, & Philipchalk, 1992).

Psychological Well-Being Scale (PWBS)

The Psychological Well-Being Scale was the first measure used to assess participants' well-being. The original version consists of six dimensions containing 20 items each (Ryff, 1989). However, in this study the shortened 9-items per scale version were utilised. As such the 6 subscales contains 9 items and total subscale scores can range from 9 to 54. The 6 dimensions related to well-being include:

autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Participants rated each item on a 6-point Likert scale: 1 strongly disagree, 2 disagree somewhat, 3 disagree slightly, 4 agree slightly, 5 agree somewhat, or 6 strongly agree. Negatively worded items were reverse coded. In total the instrument contains 54 items and total scores can range from 54 to 324. While cut-off scores are not available, levels have been outlined in previous research. Scores were considered high if they fell in the top third, moderate if they fell in the middle third, and low if they fell in the bottom third of observed responses (Keyes et al., 2002). Internal consistency (alpha) coefficients are 0.83, 0.86, 0.85, 0.88, 0.88, and 0.91 for each dimension respectively (Ryff, 1989). Correlations of each scale with its own 20-item parent scale range from 0.97-0.99.

Satisfaction with Life Scale (SWLS)

Life satisfaction was assessed using the Satisfaction with Life Scale (Diener, Horwitz, & Emmons, 1985). The SWLS consist of 5-items that measure general perceptions of satisfaction with a response range of 1 = Strongly Disagree to 7 = Strongly Agree and total scores that can range from 5 to 35. The scale relates positively to measures of well-being and negatively to measures of distress (Pavot & Diener, 1993). The SWLS demonstrated internal consistency (α = .84; Heisel & Flett, 2004), test-retest reliability ranging from a two month period (r= .82; Diener et al., 1985) to four years (r= .54; Pavot & Diener, 1993). Convergent and discriminant validity was also established (Pavot & Diener, 1993).

Scale of Positive and Negative Experience (SPANE)

Positive and negative affect were measured using the Scale of Positive and Negative Experience (Diener et al., 2009). The measure consists of 12-items of which 6 evaluate positive feeling and 6 evaluate negative feelings. The 6-items for both the positive and negative items are divided into 3 general items and 3 specific items. The SPANE items are answered on a scale that range from 1 (Very rarely or Never) to 5 (Very often or Always). The summed positive score (SPANE-P) and the negative scale (SPANE-N) can range from 6 to 30. The two scores can be combined, to create an affect balance, by subtracting the negative score from the positive score, and the resulting SPANE-B scores can range from -24 to 24. The three subscales had high Cronbach alphas and temporal stability over one month: SPANE-P .87, .62; SPANE-N, .81, .63; and SPANE-B, .89, .68 (Diener et al., 2009).

Evaluative Questionnaire

During the second evaluation participants were given an evaluation measure to gain insight into any goal changes that might have taken place, the reasons for these changes, and possible exercise barriers (see Appendix D). In order to be sure if goal change took place participants had to be reminded of the goals they set during the initial testing two months earlier. As such, the goals each participant indicated during initial testing were provided and the participants were asked if they have made any changes to their goals, and if so, to name the new goals. Reasons for either changing or not changing their goals were also investigated. And lastly this measure also included items that assessed the reasons why individuals do not exercise as regularly as they would like to. Participants were provided with possible

exercise barriers to choose from, drawn from a recent study done by the Canadian Fitness and Lifestyle Research Institute (1996).

Attainment Survey.

At Time 3, participants were asked to provide two ratings of their success in pursuing the goal they nominated at either Time 1 or Time 2 (Feldman, Rand, & Kahle-Wrobleski, 2009). The first item was, "I have made considerable progress toward attaining my goals", to which participants responded on a 1 (Strongly Disagree) to 5 (Strongly Agree) scale. The second item was, "I accomplished what I set out to do with my goals." the same response scale was used (see Appendix E).

3.2.7. Operational Definitions

The purpose of this section is to provide descriptions of the variables measured in the study and operationally define each, as well as detail how variables were coded. Hope, PGI, Personality, SWB, PWB, Psychological, Social, and Physical Exercise Goals were all treated as continuous variables. Gender was categorical, while Age was analyzed as a continuous variable. Self-Set Exercise Goals were coded in various descriptive categories.

Age. Age was operationalised as a continuous variable in the present study and was measured with one item on the demographic questionnaire requesting participants to state their age (e.g. "Age ___.")

Length of Exercise. Length of exercise was operationalised by the use of one demographic item, "Can you indicate how long you have been exercising?". In order

to make sure participants had a clear understanding of what the researcher meant by exercise the participants were provided with a definition of exercise and examples. Regular Exercise was defined as any planned physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.). Participants were asked to report the length they have been exercising in years, however if they have been exercising for less than a year they were ask to report the number of months they have been exercising. For analytical purposes this variables were converted to months exercised.

Self-Set Exercise Goals. Self-Set Exercise Goals were operationalised by one demographic item. Participants in this study were asked to provide their self generated goals and relay these in their own words, for example, "Be able to cycle more than 20 miles on average". They were presented with space on the questionnaire to indicate any three social, health, or fitness goals related to exercise. If participants did not have any goals they were provided with an item where they could indicate as much.

Requesting participants self-set goals had a dual purpose. First to establish the goals participants are working towards for the purpose of establishing progress and attainment and secondly to gain insight into the content of these goals. Previous studies (McLachlan & Hagger, 2011; Smith, Ntoumanis, Duda, & Maarten, 2011) that required participants to indicate their self-generated goals, coded these goals into different categories such as, external or internal goal categories. These categories do not provide any additional information about the goals, besides stating whether a goal is extrinsic or intrinsic. Furthermore, the intrinsic and extrinsic nature of participants' goals could be inferred from the categories inherent to the EMI-2

measure. For instance, Markland (1999) contrasted between extrinsic (weight management, appearance, and health pressures) and intrinsic exercise motives (enjoyment, personal challenge, and affiliation). Thus, instead of employing the same coding method used by these previous studies, the decision was made to code the goals in a more descriptive manner in order to gain an in-depth understanding of the elements used by individuals to construct their goals.

In order to code the self-set goals in a more descriptive manner, it was decided to categorise goals according to four criteria. First the amount of words utilised by participants in the description of their goals. The second criterion relates to the intentions participants conveyed in their goals, related specifically to elements that they wanted to change. The third criterion is associated with relative changes that participants indicate in their goals; related to vague indications of change (e.g. lose weight). The last criterion is associated with the absolute changes that are related to specific, quantifiable elements (e.g. lose 5kg).

Exercise Motivation Inventory (EMI-2). The exercise motives of participants were operationalised using a shortened version of the EMI-2 (Markland & Ingledew, 1997). The 14 motives and 51-items from the original EMI-2 were reduced to 10 motives and 38-items. Three factors were identified as psychological (stress management, revitalization, enjoyment), social (challenge, social recognition, affiliation, competition), and physical motives (health pressures, weight management, strength and endurance).

Personal Growth Initiative Scale-II (PGIS-II). Personal Growth was operationalised using the (PGIS-II; Robitschek et al., 2012) a new multidimensional

measure of PGI. The PGIS-II is a 16-item measure with four subscales: Planfulness, Readiness for Change, Using Resources, and Intentional Behaviour. Although each of these sub-scales have their own scores that are utilised in this study they can also be combined into an overall PGI score.

Trait Hope Scale. Hope was operationalised using the Trait Hope Scale (Snyder et al., 1991) that provided scores for two sub-scales (pathways and agency), that could be combined into a total hope score. In this study these sub-scale scores are used for some of the analysis, however the total score was also utilised in other analysis.

Eysenck Personality Questionnaire-Revised (EPQ-R). Personality was operationalised as a continuous variable using the EPQ-R (Eysenck, Eysenck, & Barrett, 1985). The personality dimensions used in the present study include, extraversion, neuroticism, and psychoticism. In this instance social desirability (lie scale) was not used as an indication of an individual's personality.

Well-Being

Seligman (Forgeard, Jayawickreme, Kern, & Seligman, 2011) recently proposed that well-being should not be measured by a single well-being index, but rather researchers should make use of a variety of measures and indicators to understand individuals' sense of well-being. This study made use of three different scales to access a person's well-being. These scales include Ryff's Psychological Well-Being Scale (PWBS), the Satisfaction with Life Scale (SWLS), and the Scale of Positive and Negative Experience (SPANE). Although all of these questionnaires

measure different aspect of well-being, they were not presented as separate scales in this study. All three questionnaires were incorporated into one well-being scale.

Hedonic Well-Being. Subjective well-being was operationalised using two scales the Satisfaction with Life Scale (SWLS; Diener, Horwitz, & Emmons, 1985) and the Scale of Positive and Negative Experience (SPANE; Diener et al., 2009). The SWLS provides a cognitive judgment of satisfaction with one's life. While the SPANE give an indication of how regularly an individual feels either positive or negative feelings. The total affect balance (SPANE-B) can be determined by subtracting the negative feelings sub-scale from the positive sub-scale. Three measures were thus used to assess the three components of hedonic wellbeing. For the current study Subjective Well-Being was computed by subtracting the negative emotion sub-scale score from the positive emotion sub-scale score and adding it to the SWL score (see Diener, 2013; Linley, Maltby, Wood, Osborne, & Hurling, 2009).

Eudaimonic Well-Being. Psychological well-being was operationalised using Ryff's (1989) Psychological Well-Being Scale (PWBS). The 6 dimensions related to well-being include: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Psychological Well-Being was computed by adding all six subscale scores and dividing it with the number of subscales. This method is in line with previous studies (Burns & Machin, 2009; Sheldon, Kasser, Smith, & Share, 2002) that also combined the six subscales to create a PWB composite score.

Goal Change. Goal change was operationalised as a categorical variable using one item: "Have you made any changes to the above mentioned goals in the last two month?" Participants were presented with two options either "yes" or "no". If their answer was "yes" they were asked why they changed their goals. Three reasons for the goal change were presented and included the following: "It was too easy, It was too hard, I already attained them". However, because these options are not the only reasons why exercisers might change their exercise goals participants were also provided with space on the questionnaire where they could indicate other reasons for their goal change.

Goal attainment. Goal attainment was operationalised using two continuous items (Judge, Bono, Erez, & Locke, 2005; Sheldon & Elliot, 1999). These items provided participants with the opportunity to indicate their perceived goal attainment. The two items were "I have made considerable progress toward attaining my goals" and "I accomplished what I set out to do with my goals." Participants responded to these items after four months. A 5 point Likert scale (1 = Strongly Disagree – 5 = Strongly Agree) was used to indicate participant's self-evaluation. Responses were averaged for each participant to form a goal attainment score.

3.2.8. Procedure

In order to gain permission for recruitment from the local gymnasiums the researcher approached the management of each gymnasium and requested approval to approach their staff and service users. Recruiting first year students required the submission of this study to the SONA system (an online participant volunteer portal) of School of Social and Health Science. In order to recruit

participants online the researcher contacted various psychological web-sites requesting that this study be advertised on their web-site.

The study was presented as an assessment of goal setting and its possible effects on well-being. Participants were informed that data collection would take place at three time points, over a four month period. During these assessments, participants completed a series of questionnaires that assessed their personality, exercise motives, future-orientation, exercise goals, and well-being.

Figure 3.5 provides a visual indication of which measures were completed at each time point. On the first occasion, participants were requested to complete the following questionnaires: the Eysenck Personality Questionnaire-Revised (EPQ-R); the Trait Hope Scale; the Personal Growth Initiative Scale-ll (PGIS-ll); Exercise Motivation Inventory (EMI-2); Well–Being Questionnaire (PWB, SWB, SPANE, & SWL), and the Goal Survey. On the second occasion the participants completed an evaluative questionnaire requesting them to indicate changes in their exercise goals and possible barriers to regular exercise participation. During the third and last testing, participants were requested to complete the Trait Hope Scale; the Personal Growth Initiative Scale-ll (PGIS-ll); Exercise Motivation Inventory (EMI-2); Well–Being Questionnaire, and a survey of goal attainment.

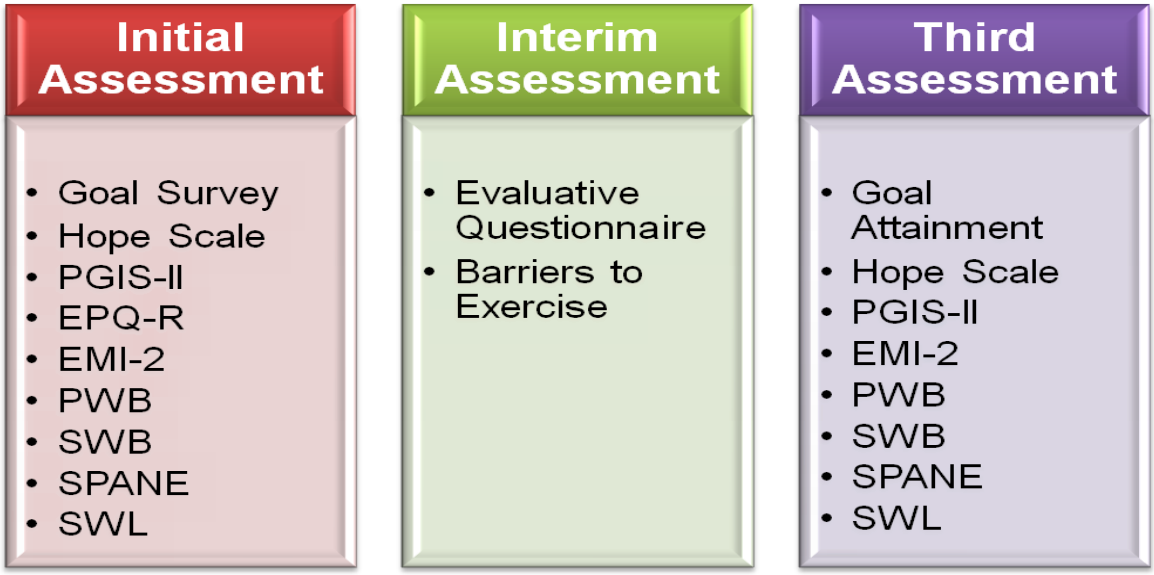

Figure 3.5. *Visual representation indicating the measures completed at the various time points*

During the initial assessment participant(s) were taken into a quiet, confidential room and provided both the informed consent and questionnaire packet. The researcher gave an overview of the consent form and described what the study would entail. After the study was explained written consent was gained from each willing participant to participate in this longitudinal study. The consent form provided the researcher with permission to use the data gained from the questionnaires for research purposes. Furthermore, it also provided the researcher with permission to contact the participant at the various time points, if he or she indicated an interest in the longitudinal study. After the agreement to participate the participants were asked to complete the questionnaires and hand or send it back to the researcher. The questionnaires were handed, mailed, or e-mailed to the participants, depending on the method they chose and contact details they chose to divulge. Because of the longitudinal nature of this study, participants were asked to divulge contact details such as mailing addresses, e-mail addresses, and mobile phone numbers. In order

to obtain a high response rate, this information was used by the researcher for follow up purposes and distribution of the questionnaires.

In such cases where the electronic version was the participants preferred method of participation, a web page link was provided to the participant. If this link was entered into a web browser or clicked on participants were taken directly to the electronic version of the questionnaire. The participants were contacted once as an indication from the researcher that it was time for them to complete the next phase of the study. Two follow up e-mails or texts were sent to remind the participant to take part. If there was no response from the participant after the last reminder, the researcher assumed that he or she no longer wanted to be part in the study. Assuming that a participant indicated, on the informed consent form, his or her willingness to take part in the longitudinal study the researcher then allocate a unique identification number (UIN) to the participant. The UIN was then used to match the participant's data at the different time points thereby maintain anonymity. After participation each participant received a debrief form that provided information on the study and the contact details of the researcher should they have any questions.

3.2.9. Electronic Questionnaire

The electronic questionnaire resembled the paper version of the study. The participants were provided with an information sheet about the study and requested to complete a consent form. After completion of the previous two documents participants completed the questionnaires. At the end of the questionnaire section participants were reminded of the researchers contact details and to contact the researcher with any further questions.

3.2.10. Incentive to Participate

As this was is a longitudinal study that required participants to complete a fairly lengthy questionnaire on two occasions and a shorter interim questionnaire, an incentive was offered to the participants. All the participants were entered into a prize draw for shopping vouchers. For every time the participant completed a questionnaire his or her UIN was entered into the draw. For example, if a participant took part in the study at all three time points his or her UIN was entered three times and if a participant took part once, his or her UIN was entered once. At the end of the study all the participants entered into a random draw and three UIN's were drawn. The participant to whom the first UIN belonged received a £50 voucher, the second UIN received a £25 voucher and the third UIN received a £10 voucher.

3.2.11. Ethical Considerations

The study commenced after ethical approval was obtained from the Ethical Committee of Abertay University. It was expected that no known mental or physical discomfort would be experienced by the participants though they were informed that they may leave the study any time, without explanation, should they feel uncomfortable. Participants were not directly deceived except in terms of the full nature of the study. However, participants were fully debriefed. At the conclusion of the study the participants received a debriefing form which provided specific information about the study and the contact details of the researcher should they have any unanswered questions.

As explained in the participant information sheet, participants were fully aware that participation was completely voluntary and that they could withdraw from the study without explanation. If participants agreed to take part in the longitudinal study

and indicated as much on the informed consent form, they were asked to divulge their contact details. The contact details were used for communication during the data collection period, after which all identifying information, linking individuals to specific personal details, was destroyed. In order to guarantee confidentiality the researcher separated the questionnaires from the personal contact information sheet and stored both in separate, locked filing cabinets. As previously mentioned, in order to match the participants' data from the various time points, each participant was allocated a UIN. This UIN was used to identify a specific participant's results, and in this way the participant's name was not used in reference to his/her results.

The information sheet informed the participants that they had to set their own exercise goals and that Abertay University would not be held responsible for any injury that occurred during the study. After the information sheet was read or explained to the participants, they were able to give informed consent by signing the consent form.

As the research was conducted in external institutions, it is worth noting that the researcher requested permission from every institution before recruitment started. During a pilot study it was found that some gymnasiums are more comfortable with their own staff distributing the questionnaires as their clients leave the gym or as they enter. They also requested that the researcher provide them with a box for the participants to deposit their questionnaires into. For this reason and considering questionnaire length, as well as the time constraints on participants, this approach was available to the gyms. This way participant's completed the questionnaires at home and brought them back during their next gym visit. The locked boxes that were provided to the gyms were under the supervision of the gym reception staff and only the researcher had access to the content.

3.3. DATA ANALYSIS

3.3.1. Analytic Strategy

Preliminary analyses were conducted in order to assess the dataset for errors, missing data, and outliers. Assumptions such as normality of distributions and multicollinearity were assessed. Furthermore, descriptive statistics including means, standard deviations, and inter-quartile ranges for all the demographic variables are also presented in this section. Two sets of correlation analysis will be presented. The first will examine the relationships between all the continuous variables measured during the initial testing. The second will examine the relationship between all the continuous variables measured during the third testing. These descriptive statistics will be followed by the inferential analysis that will be divided into three different sections related to the longitudinal nature of this study. Each section will examine the data collected during each wave of the study.

First Testing

In order to test the uniqueness of Hope and PGI various statistical analyses were utilised. Exploratory Factor Analysis (EFA) was used to determine the factor/s underlying these future-orientated concepts. The results gained from the EFA were confirmed using Confirmatory Factor Analysis. During these analyses we were not attempting to establish which item loads onto which factor, since this has been established during the scale development process (see Robitscheck, 1998, Snyder et al., 1991). The analyses reported are based on a subscale level for each of the variables, as this is seen as the appropriate level of analysis for the research question we are attempting to answer (see Keyes et al., 2002, Linley et al., 2009). We thus made use of consolidated sub-scale scores (e.g. Pathways, Agency)

instead of using individual item scores. When interpreting model fit it is important to note that the goal is to obtain a non-significant *p* value for the χ^2 statistic. Because χ^2 is sensitive to sample size it is possible that even with a large sample, models with good "fit" will be rejected (Byrne, 2010). As a result, other fit indices such as the comparative fit index (CFI) and non-normed index (NNFI) are used in addition to the χ^2 statistic to determine model fit. The CFI and NNFI values are generally considered to indicate a good fit at levels over .90. The root mean square error of approximation (RMSEA) indicates the degree of misfit per degrees of freedom, with values of 0.08 and below being acceptable, but values of 0.05 and less being preferred (Byrne, 2010). A second EFA was also conducted to determine whether or not PWB and SWB are two related but unique indicators of well-being.

Hierarchical Regression Analysis was used to test the independent variables' ability to predict the outcome variables. Firstly regression analysis will be utilised to determine the unique contribution that both PGI and Hope make to the prediction of both SWB and PWB. Secondly the regression analysis will be used to determine the interchangeability of Hope and PGI when predicting Well-Being.

Mediation Analysis was utilised to determine whether or not the relationship between the strongest predictor and Well-Being is mediated by Exercise Goals. We employed bootstrapping to estimate the 95% confidence intervals of the indirect effects using the Structural Equation Method program, AMOS. There are two advantages to using this statistical method. First, it is possible to test more complex models with multiple predictors and outcome variables. Second, AMOS provides bootstrapped confidence intervals and associated statistical significance tests for *ab* indirect paths. Bootstrapped confidence intervals are regarded as the best method for statistical significance testing for indirect effects, particularly when assumptions of

normality may be violated. In order to judge the significance of the indirect path several criteria can be used. Firstly, the *a* and *b* coefficients can be statistically significant. Secondly the indirect effect is deemed to be statistically significant at <.05 if the confidence intervals do not contain zero. The last criteria relates to the Sobel test for *ab* that has to be statistically significant at <.05 level.

Besides a focus on the influence of Future-Orientation and Goal Setting on Well-Being, there was also a focus on the relationship between Personality Traits and Future-Orientation and how they individually contribute to the prediction of Well-Being. As such, there will also be an analysis attempting to distinguish between the Future-Orientated constructs (Hope and PGI) and Eysenck's Personality Traits, as well as their individual predictive abilities. Factor Analysis will be utilised to distinguish between the variables and Regression Analyses will be used to test the predictive ability of the variables. There will also be a focus on the mediating effect of Exercise Goals on the relationship between Personality Traits and PWB. To determine mediation the bootstrapping method previously explained will be employed.

Second Testing

In this second descriptive section results with regards to interim Goal Change will be explained. It will be also of interest to see whether or not this interim goal change had an effect on Well-Being (PWB) and Goal Attainment measured at the third assessment. As such Mann-Whitney U tests will be performed to test the mean difference in Goal Attainment for those who changed their goals after two months and those who did not.

Third Testing

The third inferential section will contain analysis utilising a Mann-Whitney U test to determine if a mean difference in Goal Attainment and Well-Being exits between those participants who changed their goals after four months and those who did not. Correlation Analysis was used to determine the relationships between the variables measured during the third assessment. Again a Regression Analysis examined Hope and PGI's predictive ability of longitudinal Well-Being. This will be followed by a mediation analysis determining whether or not the relationship between Future-Orientation and Well-Being is mediated by Exercise Goals.

3.4. RESULTS

All statistical analyses were performed using SPSS Statistics 21.0, a data analysis package designed for the social sciences. Various levels of analysis were conducted starting with a preliminary analysis detailing missing data, normality, outliers, collinearity, internal consistency, and the descriptive statistics. The latter included means, standard deviations, and ranges for all the demographic variables. Statistical assumptions were checked for each analysis and, where necessary, nonparametric statistics were used. As mentioned earlier the inferential analysis section will be divided into three parts pertaining to the three waves of data collection during this longitudinal study.

3.4.1. Preliminary Analyses

Preliminary analyses allow for exploration of the nature of the variables in the dataset and include: assessing normality, checking for outliers, and determining any collinearity, data manipulations, and testing the internal consistency of the scales.

Each process is discussed in this section. Also, see Tables 1 to 4 in Appendix A for summaries of the preliminary findings. However, before any of these preliminary analyses can be conducted the data set needs to be assessed for missing data.

Missing data

The original sample (N = 309) contained missing data, participants who completed only some of the questionnaires leaving others unanswered or provided the same answer to all the questions on a questionnaire. Therefore some of the participants had to be removed from the final data set. There are various reasons why a participant might fail to complete an item on a questionnaire for instance misunderstanding questions, embarrassment, sloppiness, secrecy, reluctance to cooperate, or boredom due to too many questions. As this study is based on the completion of questionnaires, a strategy needs to be in place to handle any missing data.

In this study the mean item score was used for those participants who had less than 10% of missing continuous data for a scale (Van Ginkel, Van der Ark, & Sijtsma, 2007; Hawthorne & Elliott, 2005). Participants with greater than 10% of missing continuous data for a scale were removed. For instance, if a participant neglected to complete 2 items on a 20 item scale these two items were substituted with the mean of this scale. However, if it the participant left more than two items unanswered then the participant was excluded from the study. This approach was followed for scales containing a large number of items for example the Hope, PGI, EMI-2, Psychological Well-Being, and the Eysenck Personality Questionnaire. However, this strategy was not employed for the Life Satisfaction Scale as it only

contains 5 items. In this instance if a participant were to fail to complete an item on the scale the participant would be excluded from the study.

The original sample of 309 participants contained missing data. Each scale for every participant was carefully evaluated and if it contained more than 10% of missing data the participant was excluded from the study. Based on this strategy 45 participants were eliminated from the study with only 11 participant scales requiring mean imputation. After the participant elimination the final sample amounted to 264.

Normality

Tests of normality assumptions of the dependant variables showed that the data were normally distributed. When using kurtosis and skewness it is important to consider that very small standard errors will always produce significant results and as such the tests of the significance of kurtosis and skewness are not considered appropriate with large samples (N > 100). Literature specified that skewness and kurtosis values of 2.3 or below are not problematic for CFA and other types of Structural Equation Models (Tabachnick & Fidell, 2007). Table 1 (see Appendix A) presents all the kurtosis and skewness scores for all the measures, including the two dependant variables. As a further test of normality, judgments of normality were based on visual inspection of the histograms and normal probability plots for each of the dependant variables (Tabachnick & Fidell, 2001). In each case, the variables were judged to be sufficiently normally distributed for use in maximum likelihood estimation in the CFA. Although it should be noted that CFA is robust against moderate departures from normality (Tabachnick & Fidell, 2001). In the case of Exploratory Factor Analysis it is important to note that this statistical method differs from other multivariate procedures, because dependent and independent variables

are not separately identified. The result being that the relationship between variables are examined without specifying the influence of one variable on another. Thus, multivariate normality is not a requirement during extraction methods in factor analysis (Tabachnick & Fidell, 2001).

In contrast to other statistical procedures the assumption of normality and homogeneity of variance associated with Regression Analysis is not about the dependant variable. Instead the assumption of a normal distribution applies only to the random error in the relationship between the independent and dependent variable in a regression model. As such the residuals from the regression model needs to be examined. However, the assumption of normality is not required with a sufficiently large sample (N > 200). This is because the Central Limit Theorem will ensure that the residuals are approximately normally distributed (Statistics Solutions, 2013).

Outliers

To find if any data observations were outliers the Outlier Labelling Rule was implemented (Hoaglin, Iglewicz, & Tukey, 1986; Hoaglin & Iglewicz, 1987). Tukey (1977) first introduced the graphical procedure called a boxplot for the identification of outliers. The rule associated with this method declares observations as outliers when they lie outside the interval. In order to determine these intervals a common choice for *g* was 1.5. However, since this rule is not sample size dependant the probability for declaring outliers when none exist change with the number of observations. Hoaglin, Iglewicz, and Tukey (1986) found this boxplot rule with a *g* of 1.5 to be inaccurate 50% of the time. As such Hoaglin and Iglewicz (1987) used simulation to change the boxplot labelling rule to a formula outlier identification

method. The simulations was used to find a value of *g* as a function of the sample size and found that a *g* value close to 2.2 was appropriate for a sample between 20 and 300.

Equation 3.1. *Equations for determining the upper and lower cut-off points*

$$\text{Upper} = Q3 + [2.2 * (Q3 - Q1)]$$

$$\text{Lower} = Q1 - [2.2 * (Q3 - Q1)]$$

In short the method associated with the outlier labelling rule requires that upper and lower cut-off points be determined using the above formulas with $g = 2.2$. Any values that fall outside of these fences are considered outliers and should be dealt with accordingly. Using this method it was determined that none of the observations in the current data set were outliers. Table 1 (see Appendix A) presents the lower and upper cut-off points as well as the lowest and highest values in the data set for each measure.

Collinearity

Testing for collinearity between Hope and PGI, two main approaches were used, Tolerance and the Variance Inflation Factor (VIF). Tolerance is the percentage off variance in the independent variable that is not accounted for by the other independent variables. As such tolerance is a multiple regression analysis where the independent variable is regressed onto the other independent variables. The resulting R^2 value is then subtracted from 1. The variance not accounted for can be considered tolerance. Tolerance values of .10 and less can be considered

problematic. The VIF provides an indication to the degree to which the standard errors will be inflated due to levels of collinearity. VIF values of 10 or greater can be an indicator of collinearity (Belsey, Kuh, & Welsch, 2004; Pedhazur, 1997). Using both tolerance and VIF, the results presented in Table 2 (see Appendix A) indicated that no collinearity exit between Hope and PGI, and as such can be used in analyses where the absence of collinearity is a requirement.

Internal Consistency of Measures

The internal consistency of each of the measures across the three waves of data collection is presented in Table 3 (see Appendix A). With few exceptions, the measures consistently demonstrated alpha internal consistency across the three waves. See Table 3 for all the internal consistency reliability scores for each measure and corresponding subscales.

3.4.2. Descriptive Statistics

Complete descriptive statistics for each of the variables of interest across the three waves of data collection are presented in Table 4 (see Appendix A). The descriptive statistics includes means, standard deviations, and ranges for all the demographic variables. Demographic variables included Age and Length of Exercise. After evaluating the demographical variables, an evaluation was done of the descriptive related to the psychological measures used in this study.

Demographic Variables. Results indicated that this sample had a diverse spread with regards to age. Age ranged from 16 to 71 years, with a mean age of 26.06 (SD =10.56). Although some of the participants in this study have been

exercising for years others had only been exercising for months. As such, the variable was converted to the amount of months all the participants have been exercising. The range (0 - 720 months) indicates that some participants at the initial assessment have not started exercise yet. The upper range indicates that there are participants who have been participating in exercise in some form or other for the better part of their lives. However, as the mean would suggest that the majority of the sample have been participating for an average of 5 years (M = 69.01 months, SD = 102.26)

Psychological variables. Continuous data resulted from participants' responses on the following measures: Hope, PGI, PWB, SWB, Personality, Psychological, Social, and Physical Exercise Motivation. All of these measures with the exception of the personality measure contain sub-scales that can be used independently for analysis or summed to form a total score.

The mean Hope score was measured with the Agency and Pathways sub-scales. Hope scores ranged from 24 – 64 with a mean Hope of 48.21 (SD = 9.43). The PGI mean score was determined by measuring four subscales, Readiness for Change, Planfulness, Using Resources, and Intentional Behaviour. Participants' mean PGI score was 3.58 (SD = .91), with a lowest score of 1.36 and a highest score of 5.42. When considering the three exercise motives that participants could be pursuing it was found that participants were more likely to have psychological motives (M = 2.76, SD = .79, Range = .65 - 4.21) for exercise, followed by physical exercise motives (M = 1.84, SD = .80, Range = .00 – 4.00) and then social exercise motives (M = 1.83, SD = .92, Range = .13 – 4.00). The Psychological Well Being score was derived by summing all the sub-scales resulting in a mean of 4.31 (SD =

.67) and a score range of 3.00 – 5.71. Subjective Well-Being (M = 22.41, SD = 8.48, Range = 2.00 – 44.00) was determined by adding two scales, the Satisfaction with life and the Affect Balance scales. Unlike previous measures a total score cannot be determined for the personality measure instead three personality traits have been determined through three separate sub-scales. Results indicated that participants were less likely to exhibit Psychoticism (M = 3.27, SD = 2.16, Range = .00 – 12.00), but score higher on the Neuroticism (M = 8.25, SD = 3.24, Range = .00 – 12.00), and Extraversion (M = 6.23, SD = 3.55, Range = .00 – 12.00) sub-scales. Individual descriptive statistics for all the sub-scales can be found in Table 4 (see Appendix A).

3.4.3. Inferential Statistics

3.4.3.1. Statistical Power

Although a minimum sample size of 150 were suggested during the planning of this study the final sample of 264 well exceeds this minimum benchmark for adequate statistical power. Considering the high attrition rate of this longitudinal study it is important to consider whether or not the longitudinal analyses are underpowered due to the small sample size. Post-hoc power analysis will be conducted and presented in the results section of this study which is dedicated to a discussion of the longitudinal results.

Considering the smaller sample size that will be utilised in the longitudinal analyses of this study post-hoc power analyses needs to be conducted in order to establish if the results are underpowered. For the correlational analyses in Table 3.16 it was established that with an alpha of .003 and a large effect size (.50; Cohen, 1992) the power of the analysis was .93 well above the recommended .80 level (Cohen, 1988). For the regression analysis in Table 3.17 with an alpha of .05 and a

medium effect size of .14 (Cohen, 1992) the power at .61 was below the acceptable level of .80. Conversely, for the regression results presented in Table 3.18 it was indicated that for an alpha of .05 and a large effect size of .51 (Cohen, 1992) the statistical power is .99. Since G*Power do not present the option of establishing the power for a mediation analysis it is impossible to establish if the mediation analysis is underpowered. However, given that it was estimated that a minimum of 78 participants would be needed for the analysis to have adequate statistical power it is safe to assume that the mediation analysis presented in Tale 3.19 lack such power and as such the results need to be interpreted with caution.

3.4.3.2. Uniqueness of Hope and PGI

The subsequent results presented in this section will utilise the data collected during the initial assessment of this study. The aim is to investigate the relationship between Hope and PGI, as well as, the extent to which these two constructs contribute independently to Well-Being.

Relationships between Hope, PGI, Exercise Goals, and Well-Being

Table 3.3 provide the results for the correlation analysis used to examine the relationships between Hope, PGI, Exercise Goals, PWB, and SWB. Correlation coefficients indicate Hope and PGI have a medium association. Hope and PGI have significant relationships with Psychological Exercise Goals, however only Hope has a small, significant relationship with Social Exercise Goals. Neither Hope nor PGI has a significant relationship with goals related to physical exercise motives. All the exercise related goals are significantly related to each other, with the Psychological and Socials goals being the most strongly correlated. PWB and SWB are

significantly related to Psychological Exercise Goals, but not Physical Exercise Goals, while only SWB is related to Social Exercise Goals. Interestingly PWB, as opposed to SWB, has stronger significant relationships with both Hope and PGI.

Table 3.3. *Zero-order correlations for Hope, PGI, Exercise Goals, PWB, and SWB with Bonferroni corrections*

	1	2	3	4	5	6	7
1. Hope	1						
2. PGI	**.63****	1					
3. Psychological Goals	**.36****	**.36****	1				
4. Social Goals	.16*	.08	**.53****	1			
5. Physical Goals	.11	.12	**.34****	**.28****	1		
6. PWB	**.70****	**.55****	**.24****	-.01	-.12	1	
7. SWB	**.33****	**.20****	.14*	.13*	.02	**.35****	1

Notes: N = 264. *ρ < .05, Bonferroni corrections **ρ < .002

Distinctiveness of Hope and PGI

Exploratory factor analysis employing Principal Component Analysis was used to determine the distinctiveness of Hope and PGI. As explained previously, in this analysis the totals of the six sub-scales were used for analytical purposes. The two Hope sub-scales, Agency and Pathways, and the four PGI sub-scales, Readiness for Change, Plan fullness, Using Resources, and Intentional Behaviour. Sampling adequacy was verified by the Kaiser-Meyer-Olkin measure (KMO). The overall KMO is .83, with KMO values greater than .78 for each of the subscale, which is well above the prescribed limit of .5 (Field, 2013). With an Eigenvalue (3.52) above the Kaiser's criterion of 1 the analysis indicate that only one factor can be extracted (see

Table 3.4), accounting for 58.61% of the total variance. In light of these results it was decided to confirm these exploratory results with a Confirmatory Factor Analysis.

Table 3.4. *Factor loadings for the Hope and Personal Growth Initiative Scale*

	Component
Hope & PGI Subscales	**1**
Pathways	**.77**
Agency	**.79**
Readiness for Change	**.82**
Plan fullness	**.83**
Using Resources	**.57**
Intentional Behaviour	**.79**

Notes: N = 264. Variance explained = 58.61%.

Confirmatory Factor Analyses (using Amos 6 with Maximum Likelihood Estimation) were conducted in order to test the model fit of the above mentioned exploratory results. Based on the EFA results the CFA model assumed that both Hope and PGI factor onto a single Future-Oriented factor (See Figure 3.6). A good fit would assume that the single Future-Orientation factor has a common source of variance. The initial results indicated that the model fit was unsatisfactory: $\chi^2 = 90.35$ df = 9, $\rho = .00$, IFI= .89, CFI= .88, RMSEA= .19, AIC = 126.352. After a review of the modification indices it was decided that covariance between two error terms would be allowed. Covariance between two error terms can only be allowed if theory supports it (Byrne, 2013). In this instance the covariance between Pathways and Agency was allowed. Because both Pathways and Agency are related to Hope it can

be theorised that both these sub-scales measure two related elements of Hope and as such can be correlated. After the changes were made as suggested by the modification indices, the results were as follows: χ^2 = 14.28 df = 8, ρ = .08, IFI= .99, CFI= .99, RMSEA= .055, AIC = 40.280. The one factor model had a good fit, confirming the results found by the EFA.

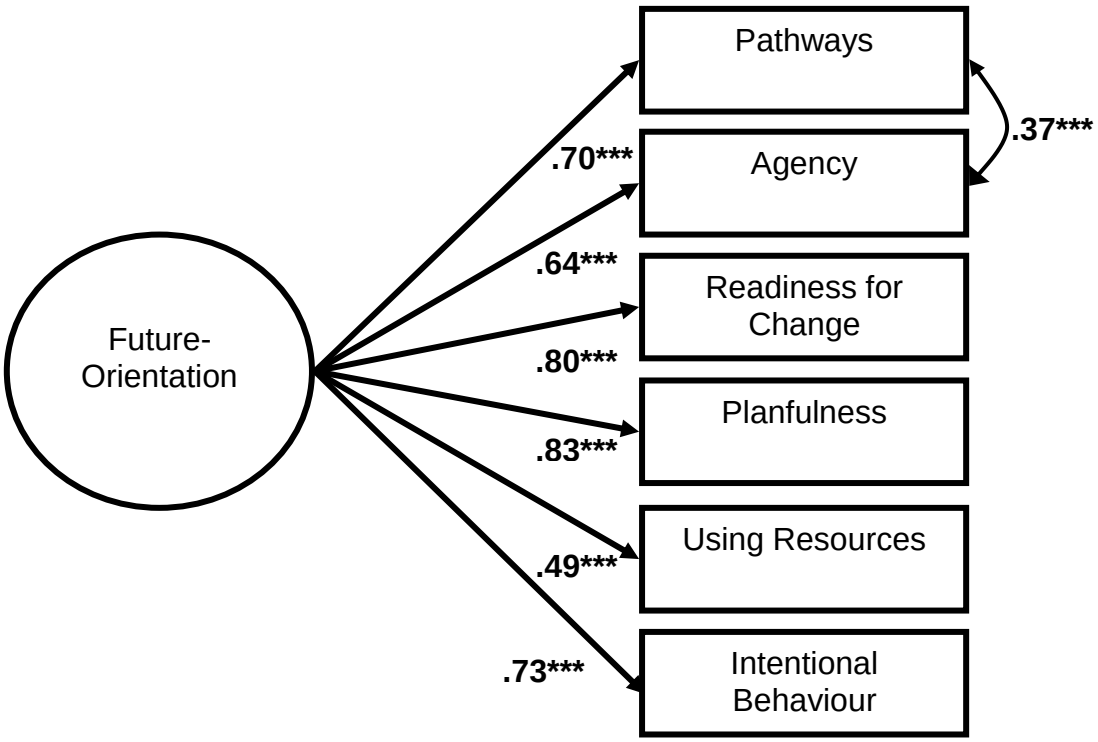

Figure 3.6. *Model with Hope and PGI loading onto a single Future-Orientated factor*

Distinctiveness of PWB and SWB

A second exploratory factor analysis employing Principal Component Analysis was used to confirm the findings of previous research (Linley, Maltby, Wood, Osborne, & Hurling, 2009; Keyes, Shmotkin, & Ryff, 2002; Biaobin, Xue, & Lin, 2004) where it was indicated that PWB and SWB are two related but unique indicators of well-being. The KMO measure verified the sampling adequacy with an

overall KMO of .81. The expectation would be that PWB and SWB load onto two different factors. The findings presented below mostly support this hypothesis. The results presented in Table 3.5, would suggest three factors should be extracted. All three have Eigenvalues (4.03, 1.20, and 1.01 respectively) well above the Kaiser's criterion of 1, with a total variance of 69.6%. The first factor comprised the PWB sub-scales, while the second factor contained the Satisfaction with Life or Positive Emotions sub-scale. Of note though is that only the Negative Emotions sub-scale loaded onto the third factor. However, this is not a surprising result since it would be expected that Negative Emotions not load onto the same factor as Satisfaction with Life or Positive Emotions. Given these results it was decided that using PWB and SWB as separate indicators of well-being was more appropriate that creating a well-being composite score. As such all the subsequent analysis, unless otherwise indicated, will utilise PWB and SWB as indicators of well-being.

Table 3.5. *Factor loadings for the Psychological and Subjective Well-Being Scales*

	Component		
	1	**2**	**3**
Autonomy	**.72**		
Environmental Mastery	**.76**		
Personal Growth	**.82**		
Positive Relations	**.76**		
Purpose in Life	**.82**		
Self-Acceptance	**.71**		
Satisfaction with Life		**.76**	

Positive Emotion	**.74**	
Negative Emotion		.**93**

Notes: N = 264. Variance explained = 69.64%.

Predicting Hedonic and Eudaimonic Well-Being

Hierarchical multiple regression analyses were conducted to determine the extent to which Hope, PGI, and Exercise Goals are predictors of Well-Being. It was decided to utilise a hierarchical multiple regression analysis since this type of analysis provides researchers with the option of entering independent variables separately into a model. Furthermore, this analysis also provides regression coefficients that correspond with each variable or set of variables entered into the model indicating the percentage of variances that is contributed to the prediction of the dependant variable.

Since Well-Being was measured in this study as both PWB and SWB, the following section will present models predicting both PWB and SWB separately. During these hierarchical multiple regression analyses three models were examined to determine the extent to which the predictors can account for the variance in the two standardised well-being related variables.

Eudaimonic Well-Being

In the first model Hope, PGI, and Exercise Goals served as predictor variables while Psychological Well-Being served as the criterion variable. As can be seen from the results in Table 3.6, Hope was entered first into the regression analysis. The model provided evidence for Hope's strong predictive qualities, accounting for 48% of the variance in PWB. PGI was entered into model second, followed by the

Exercise Goals. Although both PGI and Exercise Goals are significant predictors of PWB they made small contributions (3% and 5% respectively) to the prediction of PWB.

Table 3.6. *Summary of the hierarchical multiple regression analysis predicting PWB, with Hope entered as the first predictor*

Variable	R^2	β	SE β	Beta
Equation 1				
Hope	.482**	.070	.005	**.694****
Equation 2				
Hope	.515**	.057	.005	**.562****
PGI		.242	.058	**.225****
Equation 3				
Hope	.561**	.058	.005	**.573****
PGI		.228	.057	**.212****
Psychological Exercise Goals		.117	.068	.094
Social Exercise Goals		-.111	.054	**-.103***
Physical Exercise Goals		-.244	.056	**-.195****

Notes: N = 264. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.48****; Equation 2, ΔR^2 = **.51****; Equation 3, ΔR^2 = **.56****

Hedonic Well-Being

The second model utilised SWB as the criterion, with the predictor variables remaining the same. The results indicated that only Hope made a small, but significant contribution to the prediction of SWB (9% of the variance), while neither

PGI nor Exercise Goals made a significant contribution to the prediction of SWB (see Table 3.7).

Table 3.7. *Summary of the hierarchical multiple regression analysis predicting SWB*

Variable	R^2	β	SE β	Beta
Equation 1				
	.092**	.030	.006	**.304****
Equation 2				
Hope	.096	.027	.007	**.276****
PGI		.051	.078	.048
Equation 3				
Hope	.101	.026	.007	**.262****
PGI		.057	.080	.054
Psychological Exercise Goals		.004	.096	.003
Social Exercise Goals		-.092	.077	.086
Physical Exercise Goals		-.045	.079	-.036

Notes: N = 264. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 =**.09****; Equation 2, ΔR^2 =.09; Equation 3, ΔR^2 =.10

Interchangeability of Hope and PGI

To investigate whether the order in which Hope and PGI were entered into the regression model had an effect on the above results, another regression analysis was conducted, this time entering PGI into the model first. If Hope and PGI are truly interchangeable then both should account for the same amount of variance when entered into the regression model first. PGI accounted for 31% of the variance in

PWB, while Hope accounted for an additional 20.5% of the variance and Exercise Goals 4% of the variance (see Table 3.8). Combining these results with the results indicated in Table 3.6, it can be concluded that, although Hope, PGI, and Exercise Goals contribute the prediction of PWB, Hope has better predictive power than PGI. Since PGI does not make a significant contribution to the prediction of SWB (see Table 3.7) there is no need to investigate the interchangeability of Hope and PGI in relation to SWB.

Table 3.8. *Summary of the hierarchical multiple regression analysis predicting PWB, with PGI entered as the first predictor*

Variable	R^2	β	SE β	Beta
Equation 1				
PGI Scale	.309**	.599	.056	**.556****
Equation 2				
PGI Scale	.356**	.558	.058	**.518****
Psychological Exercise Goals		.228	.081	**.183****
Social Exercise Goals		-.086	.066	-.079
Physical Exercise Goals		-.250	.067	**-.200****
Equation 3				
PGI Scale	.561**	.228	.057	**.212****
Psychological Exercise Goals		.117	.068	.094
Social Exercise Goals		-.111	.054	**-.103***
Physical Exercise Goals		-.244	.056	**-.195****
Hope Scale		.058	.005	**.573****

Notes: N = 264. Notes: *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 =**.31****; Equation 2, ΔR^2 =**.35****; Equation 3, ΔR^2 = **.55****.

The preceding analyses indicate Hope, instead of PGI, to be the stronger predictor of PWB and the only significant predictor of SWB. When predicting PWB Psychological Exercise Goals do not make a significant contribution, however Social and Physical Exercise Goals do contribute significantly to PWB. None of the Exercise Goals contribute significantly to SWB.

Mediation Analysis: Hope, PGI, Goals, and Well-Being

Following the above reported results, where it was established that Hope rather than PGI is the stronger predictor of PWB, we were interested in examining the mediating[2] effect of Exercise Goals on the relationship between Hope and PWB (see Figure 3.1). However, given that PGI does contribute some, albeit a small amount, of variance in the prediction of PWB, we were also interested to see whether certain exercise goals would uniquely mediate the relationship between PGI and PWB, but not between Hope and PWB.

Given that the results indicate that Psychological Exercise Goals do not significantly predict PWB, it can possibly be assumed that this variable would not mediate the relationship between Hope and PWB. Furthermore, the regression results also indicate that PGI and the three Exercise Goals do not contribute to the prediction of SWB, possibly resulting in the logical conclusion that none of the three Exercise Goals would mediate the relationships between Hope and SWB, as well as, PGI and SWB. These assumptions would be in line with the most common method used for determining mediation (MacKinnon, Lockwood, Hoffman, West, & Sheets,

[2] The terms *mediation* and *indirect effects* are typically used interchangeably. According to MacKinnon et al. (2002), *mediation* is the more common term in psychology, whereas *indirect effect* comes from the sociological literature.

2002). According to this method developed by Kenny and his colleagues (Baron & Kenny, 1986; Judd & Kenny, 1981; Kenny, Kashy, & Bolger, 1998) there are four steps, performed with three regression equations, when establishing whether or not a variable (e.g. Psychological, Social, or Physical Exercise Goals) mediates the relation between a predictor (e.g. Hope or PGI) and the outcome variable (e.g. PWB or SWB; see Figure 3.7). The first step is to show that there is a significant relation between the predictor and the outcome. The second step is to show that the predictor is related to the mediator. The third step is to show that the mediator is related to the outcome variable. The final step is to show that the strength of the relation between the predictor and the outcome is significantly reduced when the mediator is added to the model.

However, it has previously been cautioned not to make the assumption of mediation since all of the possible interactions between the various variables cannot be predicted unless they are included in the same model. It has been argued that even in the absence of significant total or direct effects, significant indirect effects can occur (Rucker, Preacher, Tormala, & Petty, 2011). Whether there is a lack of total or direct effect it does not exclude the possibility of observing indirect effects. It is possible that measurement precision, strength of relationship, sample size, and the size of the total effect, are all potential reasons for an indirect effect to be detected even when the total or direct effect is not significant. It is also possible for multiple indirect effects involving unmeasured variables to explain a specific relationship. This can possibly provide a reason for why significant indirect effects might exist in the absence of a total or direct effect.

Through the use of AMOS a mediation analysis was performed employing a bootstrapping procedure estimating 95% confidence interval for the *ab* indirect

effects using procedures described by Preacher and Hayes (2008). The indirect effects are deemed to be statistically significant at < .05 if the confidence intervals do not contain zero. In the first model Hope and PGI were entered into the model as the predictors, while Psychological, Social, and Physical Exercise Goals were entered as the proposed mediators, with PWB and SWB as the dependent variables.

The relationship between Hope and PWB was partially mediated (see Figure 3.7). The specific indirect effects of each proposed mediator showed that Social Exercise Goals mediate the relationship between Hope and PWB, however Psychological and Physical Exercise Goals did not add to the model. The obtained confidence intervals can be viewed in Table 3.9. In addition, as already established above, there was also still a significant direct effect between Hope and PWB (c_1'=.60, t(262)= 11.28, p<.001). Furthermore, Hope's relation with SWB was not mediated by any of the three Exercise Goals, but the direct effect was present (c_2'=.33, t(262)= 5.63, p<.001). In contrast to the findings related to Hope, it was found that the relationship between PGI and PWB was not mediated by any of the three Exercise Goals. However, the direct effect between PGI and PWB was also still present (c_4'=.16, t(262)= 9.60, p<.01). Similarly, as cannot be seen in Figure 3.7, neither Hope nor PGI's relation with SWB were mediated by any of the Exercise Goals. With the mediation model indicating that none of the Exercise Goals mediate PGI's relationship with PWB or SWB, as well as the indication that PGI is a weaker predictor of both the outcome variables, it was decide to drop PGI from the model.

As such a second mediation model was conducted, with only Hope as a predictor variable. As can be seen in Table 3.10 and visually in Figure 3.8 Hope's relationship with PWB was partially mediated by both Psychological and Social Exercise Goals. In order to judge the significance of the indirect path several criteria

were used. In this case the *a* and *b* coefficients were statistically significant, the bootstrapped CI's for *ab* did not include zero, and the Sobel test for *ab* was significant. Judging by all these criteria, the indirect effect of Hope on PWB through Psychological and Social Exercise Goals were statistically significant. The direct path from Hope to PWB (c_1') was also statistically significant (c_1'=.70, $t(262)= 16.53$, $p<.001$); therefore, the effect of Hope on PWB was only partially mediated by Psychological and Social Exercise Goals. Based on this model individuals with high-Hope levels who set Psychological Exercise Goals will experience a significant increase in their perception of their Well-Being. Conversely, individuals with high-Hope who set Social Exercise Goals will experience a significant decrease in their sense of Well-Being. Hope's relationship with SWB was not mediated by any of the three Exercise Goals (see Figure 3.8), but the direct path from Hope to SWB (c_2') was statistically significant thus indicated Hope's direct effect on SWB.

Table 3.9. *Obtained 95% confidence intervals for the indirect effects of Hope, PGI, and the outcome variables PWB and SWB*

Predictor Variables	**Exercise Goals**					
	Psychological Exercise Goals		**Social Exercise Goals**		**Physical Exercise Goals**	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
Psychological Well-Being						
Hope	-.004	.052	**-.071**	**-.002***	-.045	.025
PGI	-.004	.055	-.013	.037	-.050	.019
Subjective Well-Being						
Hope	.000	.000	.000	.000	.000	.000
PGI	.000	.000	.000	.000	.000	.000

Confidence intervals not including 0 are marked in bold; 0000 represents an exceedingly small positive value. *$\rho < .05$, **$\rho < .01$, ***$\rho < .001$

Table 3.10. *Obtained 95% confidence intervals for the indirect effects of Hope and the outcome variables PWB and SWB*

Predictor Variables	**Exercise Goals**					
	Psychological Exercise Goals		**Social Exercise Goals**		**Physical Exercise Goals**	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
Psychological Well-Being						
Hope	**.003**	**.086****	**-.065**	**-.003***	-.050	.007
Subjective Well-Being						
Hope	-.078	.049	-.001	.061	-.039	.011

Confidence intervals not including 0 are marked in bold; 0000 represents an exceedingly small positive value. *ρ < .05, **ρ < .01, ***ρ < .001

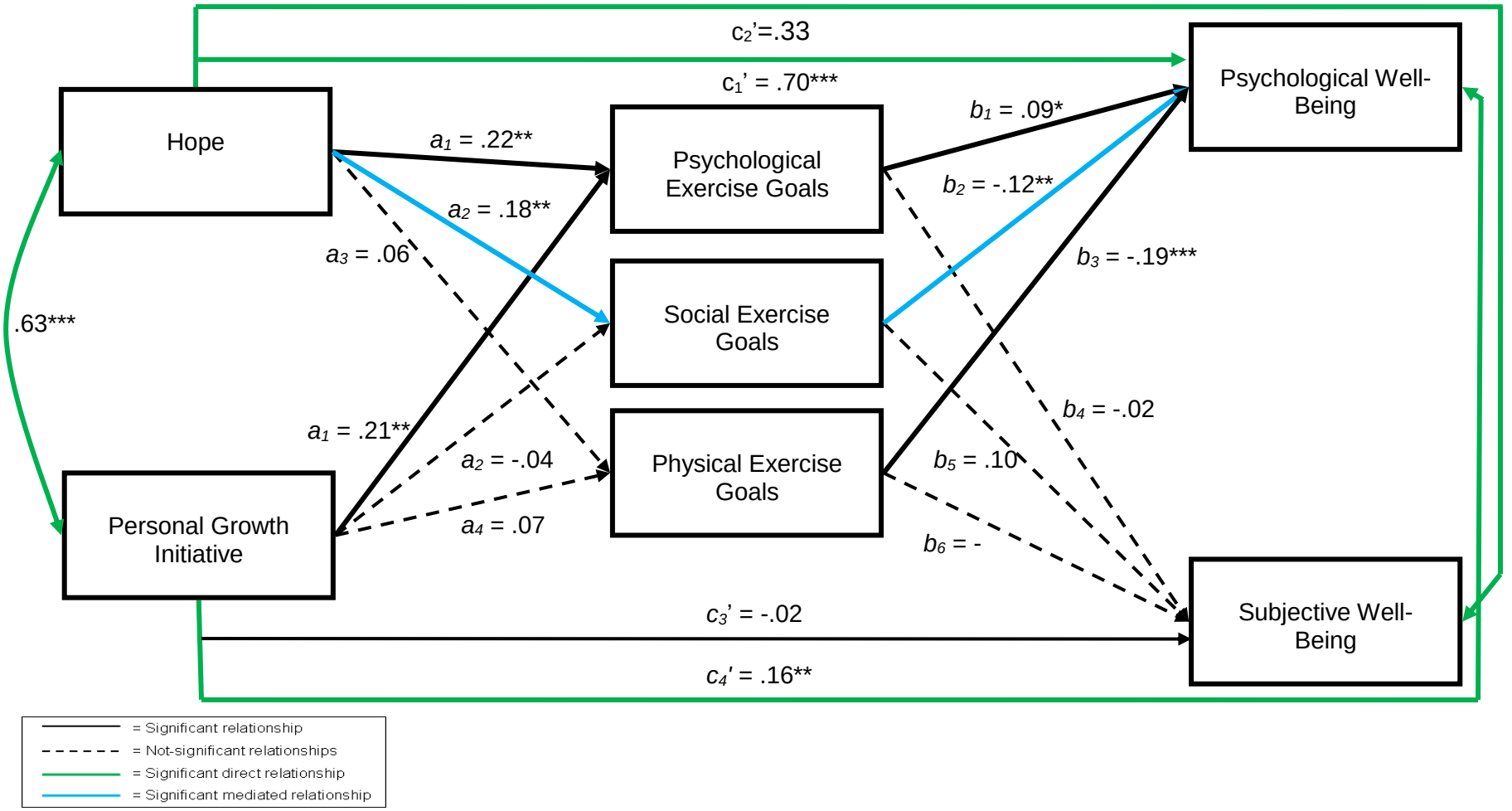

Figure 3.7. *Results of mediation analyses testing the direct and the indirect link between Future-Orientation and Well-Being. Values indicate standardised coefficients. Future-Orientation constructs include Hope and PGI, while Well-Being was measured as Psychological and Subjective Well-Being. Proposed mediators include Psychological, Social, and Physical Exercise Goals. *$\rho < .05$, **$\rho < .01$, ***$\rho < .001$*

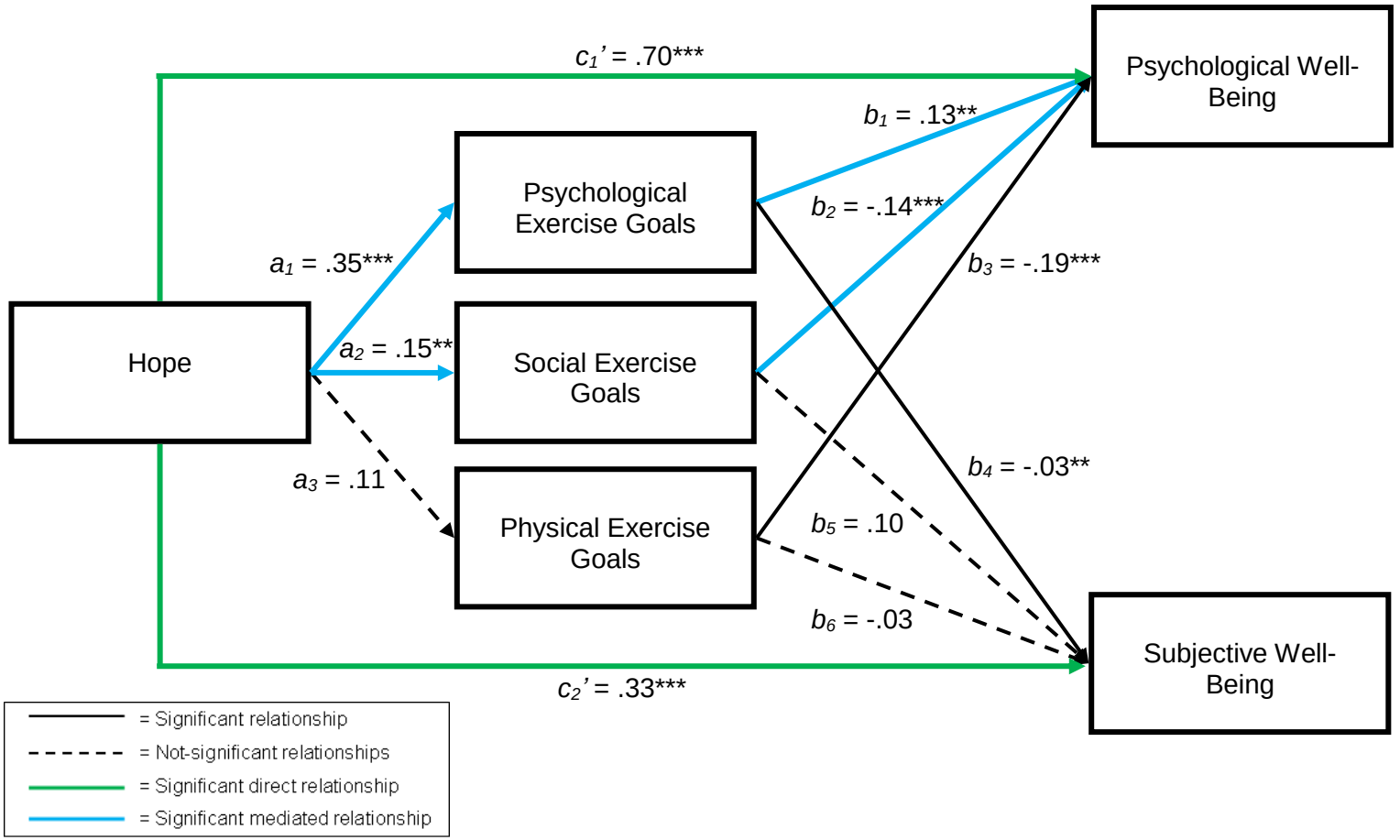

Figure 3.8. *Results of mediation analyses testing the direct and the indirect link between Hope and Well-Being. Well-Being was measured as Psychological and Subjective Well-Being. Proposed mediators include Psychological, Social, and Physical Exercise Goals. Values indicate standardised coefficients. *$\rho < .05$, **$\rho < .01$, ***$\rho < .001$*

The conclusion that can be reached from the preceding analyses is that Hope, rather than PGI, is the stronger indicator of the current samples' Future-Orientation. Although Hope, as opposed to PGI, is the stronger predictor of both PWB and SWB, Hope still accounts for much more variance in PWB than SWB. Based on PGI's lack of strength and in some cases lack of significant contribution, PGI will be dropped from any further analyses in this chapter. As such, Hope will be the sole indicator of individuals' Future-Orientation.

Furthermore, for the longitudinal analyses that will be conducted and discussed in subsequent sections of this chapter a decision needs to be made as to which of the two well-being indicator would be most appropriate for the analyses. The longitudinal aim of this study is to determine whether or not Future-Orientation influences the attainment of exercise goals and if attainment can influence Well-Being. It is thus important to note whether PWB or SWB would be the most suitable indicator of participant well-being. This needs to be done for two reasons. The first of which is the much smaller sample size that will be employed during the analyses. The second reason relates to the need for excluding unnecessary analyses.

Based on the preceding initial analyses it was indicated that Hope contributes much more variance to the prediction of PWB (48%) than SWB (9%). Furthermore, whereas Social and Physical Exercise Goals are significantly predictive of PWB, none of the Exercise Goals are predictive of SWB. Also, when considering Hope's relationship with PWB, independent of PGI, it is partially, positively mediated by Psychological Exercise Goals, while also partially, negative mediated by Social Exercise Goals. Conversely, none of the three Exercise Goals mediate the relationship between Hope and SWB. In light of all these results PWB will be the well-being indicator utilised during the longitudinal analysis conducted and described

in subsequent sections of this chapter. However, before moving on to the longitudinal analyses we need to consider future-orientation's effect on PWB in relation to personality factors.

3.4.3.3. Influence of Personality Traits

In this section we will be investigating the relationship between Hope and Eysenck's Personality Traits, as well as, their individual predictive abilities. Since the mediating role of Exercise Goals in the relationship between Future-Orientation and Well-Being was investigated previously in this chapter, the possible mediating effect of Exercise Goals in the relationship between Personality Traits and Well-Being will also be a focus here.

Correlations between Hope, Personality, and Well-Being

Having previously determined that Hope, as appose to PGI, is the stronger predictor of PWB and SWB, Hope is the construct included in the present analysis as an indicator of the participant's sense of future-orientation. Table 3.11 indicates that individuals who score higher on the Extraversion trait experience higher Hope and a small increase in PWB and SWB. Whereas those who show tendencies related to Psychoticism and Neuroticism have lower Hope levels and also tend to have lower PWB levels. Similarly, SWB has a weak, but negative correlation Neuroticism, and no correlation with Psychoticism. Interestingly, the correlations between PWB and the Personality Traits are stronger than between SWB and Personality Traits. With the current results indicating a relationship between Hope and personality traits the underlying relationship between these traits were investigated next.

Table 3.11. *Zero-order correlations for Hope, PWB, SWB, and Personality Traits with Bonferroni corrections*

	1	2	3	4	5	6
1. Hope	1					
2. Psychoticism	**-.21****	1				
3. Extraversion	**.27****	-.17*	1			
4. Neuroticism	**-.39****	.13*	-.14*	1		
5. PWB	**.70****	**-.37****	**.34****	**-.59****	1	
6. SWB	**.33****	-.06	.14*	**-.21****	**.35****	1

Notes: N = 264. *ρ < .05, Bonferroni corrections ** ρ < .003

Distinctiveness of Hope and Personality Traits

A Principal Component Analysis was used to investigate the relationships between the Personality Traits and Hope. Sampling adequacy was verified with an overall KMO of .61, and all of the individual Measures of Sampling Adequacy was above .58. It was expected that if these constructs measure distinct individual differences then the Personality Traits and Hope should load onto separate, distinct factors. However, if both Personality Traits and Hope load onto the same factor, it could bring the distinctiveness between these individual differences into question. The findings presented in Table 3.12, suggest only one factor could be extracted. This individual differences factor with an Eigenvalues of 1.68, well above the Kaiser's criterion of 1, accounted for a total variance of 41.96%. Although Hope and Extraversion loaded positively onto the same factor, supporting previous findings with regards to Hope and personality traits, Neuroticism and Psychoticism loaded negatively onto the same factor. In view of these exploratory findings a Confirmatory Factor Analysis was conducted.

Table 3.12. *Factor loadings for Hope and Personality Traits*

	Component
	1
Hope	**.79**
Neuroticism	**-.67**
Extraversion	**.59**
Psychoticism	**-.52**

Notes: N = 264. Variance explained = 41.96%.

A Confirmatory Factor Analysis (using Amos 6 with Maximum Likelihood Estimation) was conducted in order to test the model fit of the above mentioned exploratory results. In light of the EFA results the CFA model assumes that Hope, Neuroticism, Psychoticism, and Extraversion factor onto a single Personality factor (See Figure 3.9). A CFA model with a good fit would assume that the single Personality factor have a common source of variance. The results indicated that the model fit was excellent: χ^2 = 2.217 df = 2, ρ = .33, IFI= 1.00, CFI= 1.00, RMSEA= .02, AIC = 18.217. The one factor model thus indicates that Hope shares an underlying relationship with the other three personality traits, indicating that Hope measures some personality trait related aspect.

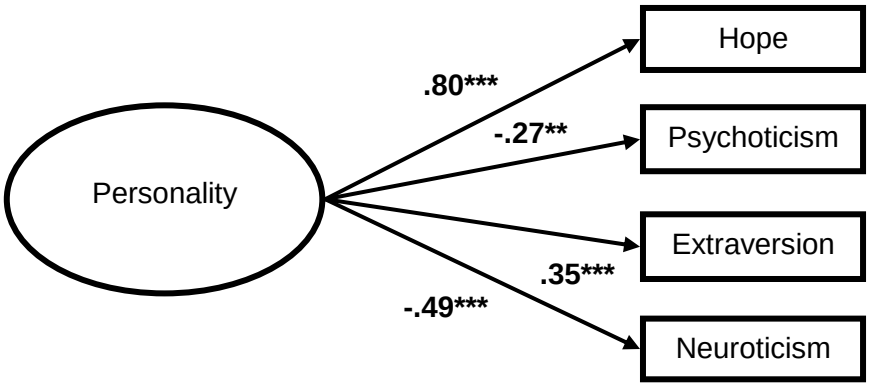

Figure 3.9. *CFA model with Hope, Neuroticism, Psychoticism, and Extraversion loading onto a single Personality factor*

Hope and Personality Traits' Unique Predictive Abilities

In order to examine the predictive ability of the three Personality Traits and Hope a Hierarchical Multiple Regression Analysis was performed. In the first instance Personality Traits were added to the model, accounting for 47% of the variance in PWB (See Table 3.13). However, Hope added an extra 19% of variance. Together the Personality traits and Hope accounted for almost 70% of the variance in PWB. Whereas, Neuroticism and Psychoticism had a negative predictive relationship with PWB, Extraversion and Hope had a positive predictive relationship with PWB.

With the weak correlations between SWB and both the Personality Traits and Hope, it was not expected that either construct would make a large contribution to the prediction of SWB. As can be seen from Table 3.14, the three Personality Traits make a very small (4%), but significant contribution to the prediction of SWB. Similarly Hope also makes a very weak contribution to SWB of 7%. When considering the individual traits it is noticeable that only Neuroticism had a significantly negative effect on SWB. However, when Hope was added into the

model it not only had a significantly positive effect on SWB, but Neuroticism's effect became non-existent as it is subsumed within Hope's contribution.

Table 3.13. *Summary of the hierarchical multiple regression analysis predicting PWB, with Hope and Personality Traits as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
Psychoticism	.479**	-.12	.021	**-.26****
Extraversion		.07	.014	**.22****
Neuroticism		-.15	.013	**-.52****
Step 2				
Psychoticism	.664**	-.09	.017	**-.20****
Extraversion		.04	.012	**.12****
Neuroticism		-.10	.011	**-.35****
Hope		.05	.004	**.49****

Notes: N = 264. Notes: *$\rho < .05$, **$\rho < .01$

For Equation 1, ΔR^2 =**.47****; Equation 2, ΔR^2 =**.66****.

Table 3.14. *Summary of the hierarchical multiple regression analysis predicting SWB, with Hope and Personality Traits as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
Psychoticism	.054****	-.01	.03	-.02
Extraversion		.03	.02	.11
Neuroticism		-.05	.02	**-.19****
Step 2				
Psychoticism	.120****	.01	.03	-.02
Extraversion		.02	.02	.06
Neuroticism		-.03	.02	-.01
Hope		.03	.01	**.28****

Notes: N = 264. Notes: *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 =**.04****; Equation 2, ΔR^2 =**.11****.

Mediation Analysis: Hope, Personality Traits, Exercise Goals, and Well-Being

Similarly to the mediation analysis of Hope and PGI, it was decided to only explore the mediating effect of Exercise Goals on the relationship between the Personality Traits and PWB. This decision was based on the Regression Analysis findings reported above, where it was indicated that the Personality Traits only made a significant contribution to the prediction of PWB and not SWB. Because Hope subsumes all of the variance in the prediction of SWB, leaving none of the Personality Traits as significant predictors of SWB, the decision was made not to include a mediation analysis testing for a mediating effect between Personality Traits and SWB.

One of the advantages of running a mediation analysis in AMOS is the inclusion of more than one predictor in a model, indicating how these predictors influences the outcome variable directly or partially. However, when analyses are conducted using models with single predictor variables (for example the Haynes and Preachers bootstrapping method) there is a loss of variance, because all the predictors and their possible interactions are not considered. Considering this, although a mediation analysis with Hope as a predictor was already conducted and reported in this chapter, the decision was made to include Hope in the subsequent mediation model with the three Eysenck personality traits.

The results presented in Table 3.15, indicate that Exercise Goals partially mediate the relationship between Personality Traits and PWB. Using the AMOS bootstrapping procedure the 95% confidence intervals for the *ab* indirect effect were estimated. As illustrated in Figure 3.10, in the mediation model the three Personality traits and Hope were entered as predictors, the three Exercise Goals were entered as mediators, and PWB was entered as the outcome variable. Although small, the direct effects between Psychoticism and PWB (c_1'= -.20, t(262)= -5.52, p<.001) as well as Extraversion and PWB (c_3'=.12, t(262)= 3.09, p<.01), was highly significant with no mediating effect. However, the relationship between Neuroticism and PWB, as well as, the relationship between Hope and PWB are partially mediated. The relationship between Neuroticism and PWB is partially mediated by Physical Exercise Goals (see Figure 3.10). However, a direct effect was still present between Neuroticism and PWB (c_4'=.33, t(262)= -9.09, p<.001). Neither Psychological nor Social Exercise Goals have a mediating effect on the relationship between Neuroticism and PWB. The obtained confidence intervals can be viewed in Table 3.15. Furthermore, the relationship between Hope and PWB is partially mediated by

Physical Exercise Goals. Psychological and Social Exercise Goals did not seem to have a mediating effect on the relationship between Hope and PWB. However, a significant direct effect is still present between Hope and PWB (c_2'=.49, t(262)= -12.00, p<.001).

As illustrated in Figure 3.8 and the obtained confidence intervals in Table 3.10, when entering Hope into a model as a single predictor of PWB the relationship between these two variables are mediated through Psychological and Social Exercise Goals. However, when entering Hope into a model with the Personality traits it seems that the previously partial mediating effects of Psychological and Social Goals dissipate. Instead a third partial mediating effect came to the fore. For those individuals with high Hope and Neuroticism setting Physical Exercise Goals seems to result in a decrease in their PWB.

Table 3.15. *Obtained 95% confidence intervals for the indirect effects of Hope and Personality Traits on PWB, with Psychological, Social, and Physical Exercise Goals as Mediators*

Predictor Variables	**Exercise Goals**					
	Psychological Exercise Goals		**Social Exercise Goals**		**Physical Exercise Goals**	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
Psychoticism	-.013	.008	-.039	.000	-.022	.013
Extraversion	-.001	.029	-.043	.000*	-.020	.018
Neuroticism	-.006	.018	-.034	.000	**-.054**	**-.004***
Hope	-.002	.061	-.045	.000*	**-.056**	**-.003***

Confidence intervals not including 0 are marked in bold; 0000 represents an exceedingly small positive value. *ρ < .05, **ρ < .01, ***ρ < .001

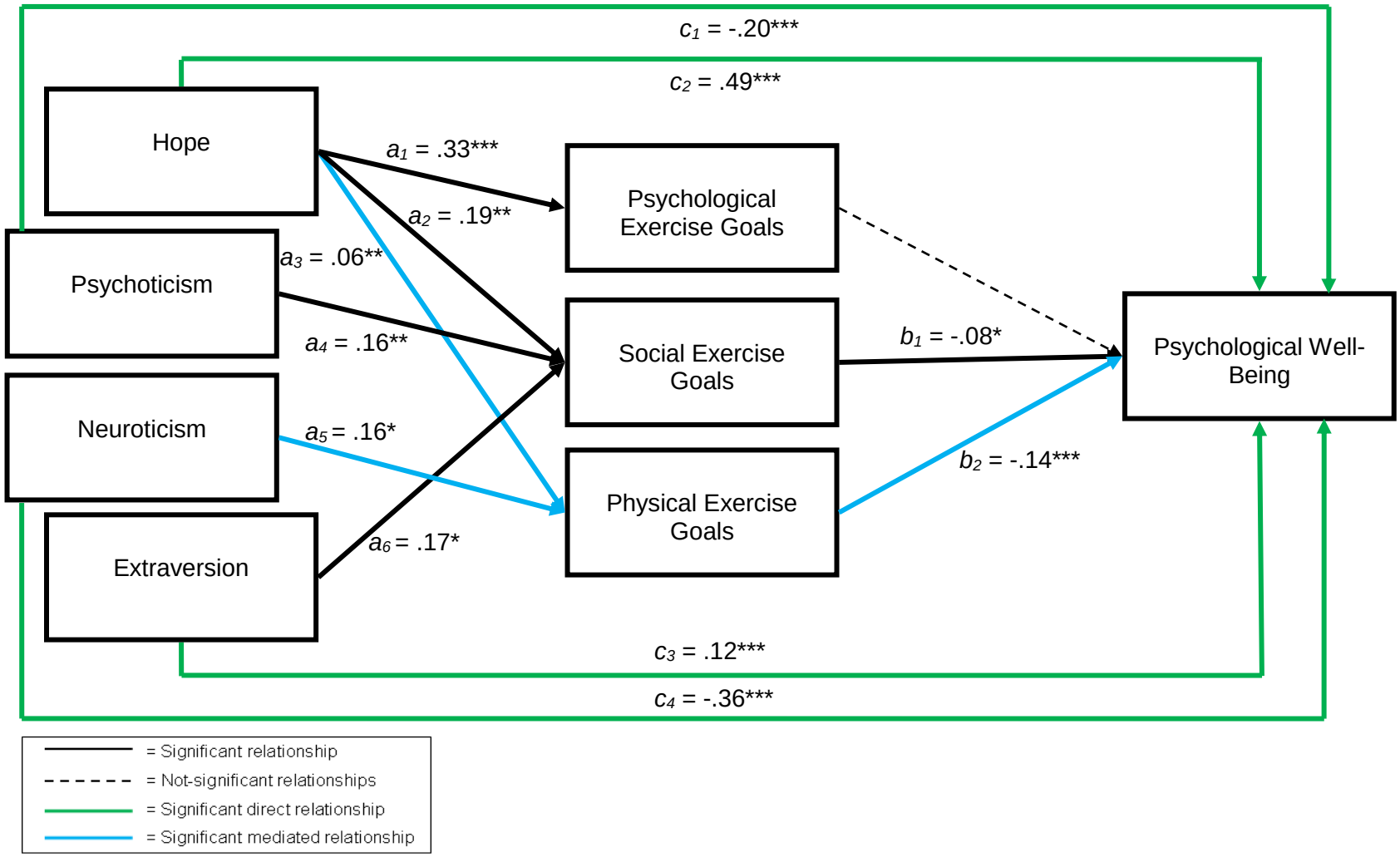

Figure 3.10. *Results for mediation analyses testing Hope and Personality's direct and the indirect link with Psychological Well-Being. Proposed mediators include Psychological, Social, and Physical Exercise Goals. Values indicate standardised coefficients. All relationships between predictor and mediating variables that are not significant were omitted. *$\rho < .05$, **$\rho < .01$, ***$\rho < .001$.*

In this section we investigated the association between Hope and Eysenck's Personality Traits, specifically the aim was to ascertain the underlying relationship between Hope and the three Personality traits as well as their individual predictive abilities towards Well-Being. Based on the EFA and CFA results it can be concluded that Hope, Neuroticism, Psychoticism, and Extraversion are all personality related traits sharing an underlying structure. The results further indicated that although the three Personality traits make a big contribution to the prediction of PWB, Hope also makes a substantial contribution. Conversely, although Neuroticism is the only Personality trait that makes a significant contribution to the prediction of SWB, this contribution is subsumed by Hope thus overriding Neuroticism's effect on SWB. Additionally, mediation results show that the relation between Neuroticism and PWB, is partially, negative mediated by Physical Exercise Goals. The same was indicated for Hope's relation with PWB.

Thus far, there has been a focus on differentiating between Hope and PGI and their relationship with Well-Being. With the conclusion reached that Hope is the stronger predictor of Well-Being, it was of interest to investigate how this construct would relate to the three Eysenck personality traits and what if any additional contribution Hope could make to the prediction of Well-Being when also considering the contribution of the Personality traits. With these questions answered we will now take a closer look at the achievement indicators of the participants in this study.

3.4.3.4. Goal Achievement Indicators

In all the analyses thus far there has been a focus on the three Exercise Goal types, Psychological, Social, and Physical, which were derived from the EMI-2. These exercise goal types serve as continuous indicators of the participants' exercise aims and was determined through a psychological measure. However, for the purpose of this study participants were also requested to indicate what they perceived to be their own exercise aims. This was accomplished through a goal setting exercise, where participants were asked to write down three or more exercise related goals that they want to attain over a four months period. The purpose of this was to ascertain participant's aims in order to track their progress over a four months period and determine their attainment of these goals at the end of this period. These self-set goals will thus be the focus in the subsequent section of this chapter.

So before examining the longitudinal effect of future-orientation and goal setting on well-being and attainment, it is important to know what percentage of the sample could indicate self-set exercise goals. Of the 264 participants that took part during the initial assessment, 90% of the participants were able to indicate their exercise goals, while 10% indicated that they had no goals.

From Figure 3.11 it can be seen that individuals who indicated self-set exercise goals have higher Hope levels (Mean = 48.71, Upper CI = 49.90, Lower CI = 47.53) than those who were unable to indicate self-set goals (Mean = 42.73, Upper CI = 47.40, Lower CI = 38.06). In order to examine the significance of this observed difference an Independent T-test was conducted. The results indicated a significant difference in Hope levels for the participants who indicated self-set goals and those who did not [$t(262) = -3.04$, $\rho = 003$]. The difference in PWB was also determined for those who had goals and those who did not (See Figure 3.12). The results show that

individuals who indicated self-set goals experienced higher levels of PWB (Mean = 4.34, Upper CI = 4.43, Lower CI = 4.26) than those who were unable to indicate self-set goals (Mean = 3.94, Upper CI = 4.21, Lower CI = 3.66). The results from an Independent T-test again indicated that difference to be a statistically significant one [$t(262) = -2.91$, $\rho = 004$].

So it can be concluded that those participants who have high-Hope tend to have exercise aims that they are working to attain and that having these aims increase their sense of well-being. Subsequently we will consider the changes that the participants made to their goals over a two month period.

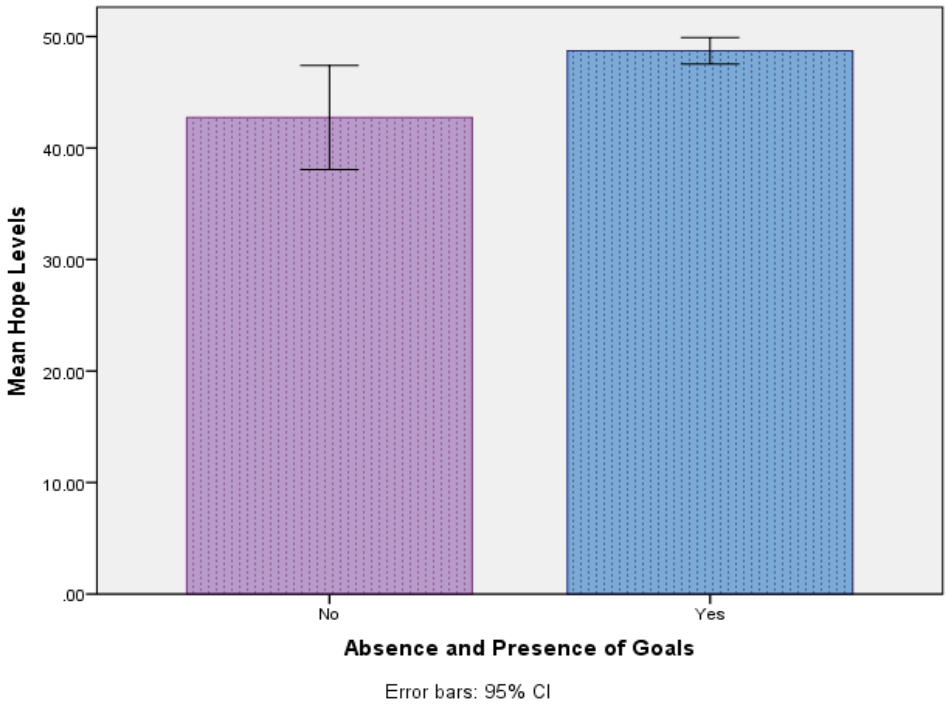

Figure 3.11. *Mean difference in Hope between those who indicated self-set goals and those who did not*

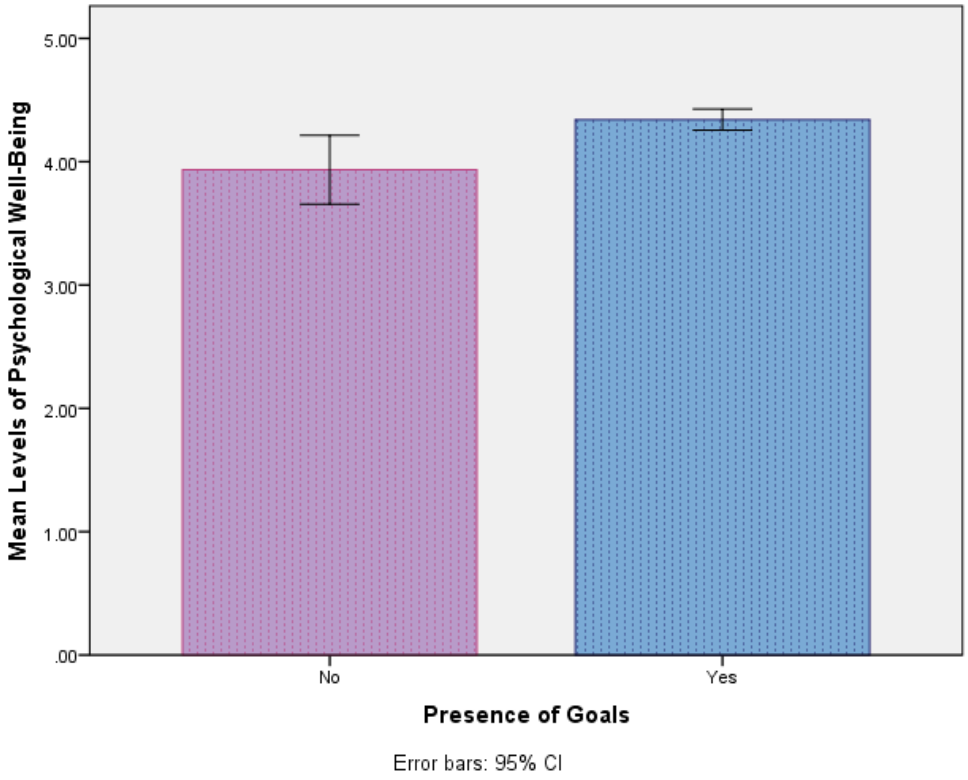

Figure 3.12. *Mean difference in PWB between those who indicated self-set goals and those who did not*

3.4.3.5. Goal Change

Although the longitudinal study was designed to take place over a four month period, it was thought that the possibility might exist for goal change to take place during the interim period. The main purpose of the second evaluation was to determine if this was the case. Furthermore, the influence of any interim goal change on Goal Attainment will be examined.

Of the 264 participating in the initial assessment, 90% (238 participants) were able to indicate their exercise goals, while 10% (26 participants) indicated that they had no goals. During the second assessment (two months after the initial assessment) participants were asked if they made any changes to their initial goals. 36% (28 participants) of the participants indicated that they had and 64% (49

participants) indicated that they had not. Of those individuals who changed their goals, 59% (10 participants) indicated this was due to the initial goal being too difficult, 29% (5 participants) had already attained their goals and thus set new goals, and 5% (2 participants) indicated other reasons such as injury or that the goal was too easy (see Figure 3.13).

An Independent t-test was utilised in order to determine if there was a mean difference in the Hope levels for those participants who changed their goals after two months and those who did not. The results indicated that Hope levels for individuals who changed their goals after two months (Mean = 49.00, Upper CI = 51.72, Lower CI = 46.28) did not significantly differ from those individuals who did not (Mean = 49.61, Upper CI = 51.68, Lower CI = 47.54), $t(62) = .36$, $\rho = .61$.

To determine if there was a significant mean difference between those who indicated interim goal change and those who did not with regards to Goal Attainment (as measured during the third assessment), an Independent T-test was conducted. The results indicated that Goal Attainment for individuals who changed their goals after two months (Mean = 2.20, Upper CI = 2.69, Lower CI = 1.71) did not significantly differ from those individuals who did not (Mean = 2.31, Upper CI = 2.67, Lower CI = 1.94), $t(62) = .366$, $\rho = .11$.

So it can be concluded that those participants who have high Hope tend to have exercise aims that they are working to attain and that having these aims increase their sense of well-being. Although the majority of individuals indicate that they did not change their goals after two months, it was found that for those who did change their goals the goal changes are not influenced by Hope levels and also did not have an effect on goal attainment.

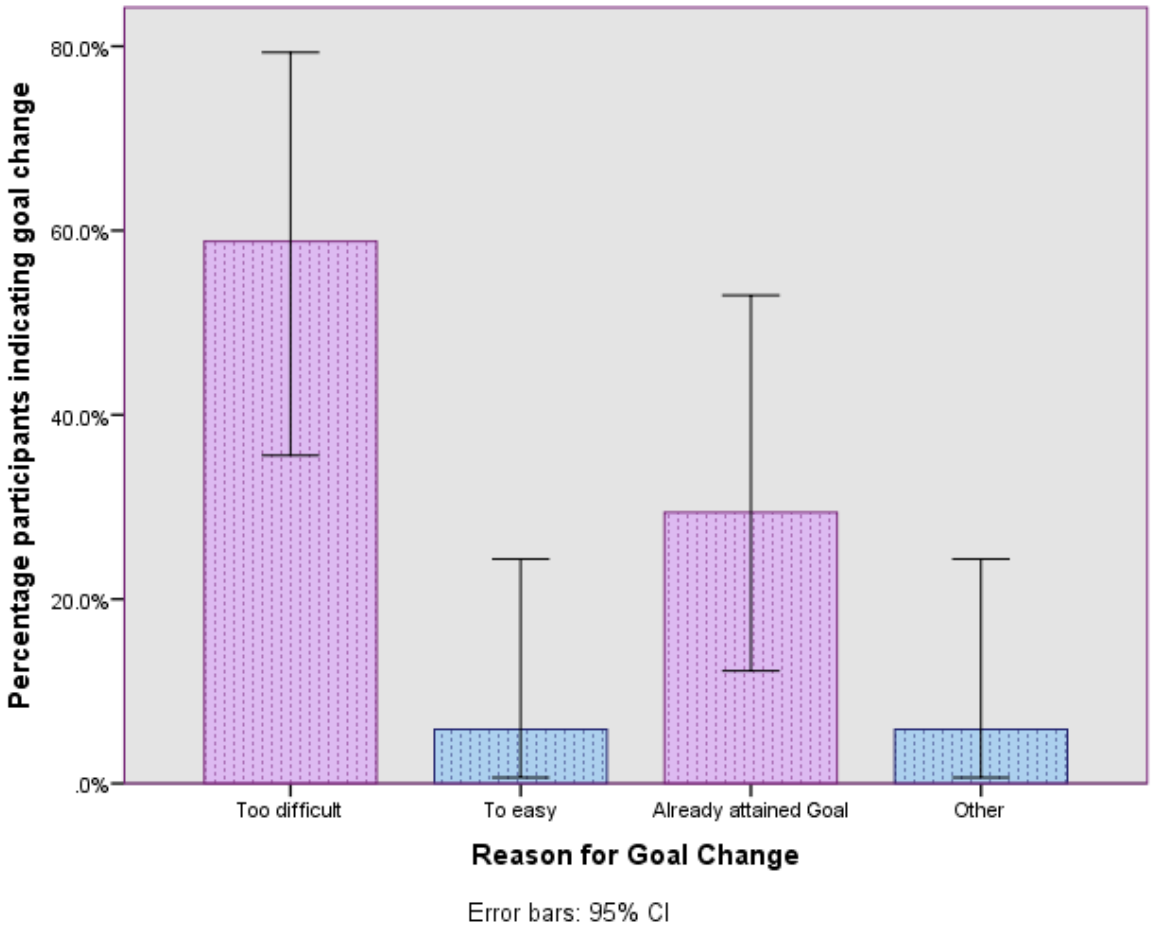

Figure 3.13. *Reasons for Exercise Goal Change*

3.4.3.6. Goal Attainment

This section continues with an examination of Goal Change, and its effect on Goal Attainment and Well-Being. A discussion of the correlations among the various continuous variables measured during the third evaluation will be presented. Results from a Regression Analysis examining Hope's predictive ability of longitudinal Well-Being will be presented. This will be followed by a mediation analysis determining whether or not the relationship between Future-Orientation and long-term Well-Being is mediated by Exercise Goals.

Goal Change and Attainment

During the third assessment (four months after the initial assessment) 66% (42 participants) of the participants indicated that they did not change their goals and only 34% (22 participants) indicated that they did. To determine if there was a significant difference between these two groups with regards to Goal Attainment an Independent T-test was conducted. Goal Attainment for individuals who changed their goals after four months (Mean = 2.15, Upper CI = 2.53, Lower CI = 1.78) did not significantly differ from those who did not (Mean = 2.48, Upper CI = 2.93, Lower CI = 2.03), $t(62) = -1.08$, $\rho = .29$. The results also indicated that the Psychological Well-Being levels of the individuals who changed their goals (Mean = .04, Upper CI = .53, Lower CI = -.46) did not significantly differ from those who did not (Mean = -.02, Upper CI = .28, Lower CI = -.32), $t(62) = -.21$, $\rho = .84$.

Although goal change after four months did not have a significant effect on goal attainment or PWB, it is of interest to determine how Goal Attainment and PWB relate to Future-Orientation and Exercise Goals. As can be seen in Table 3.16 individuals who have high-Hope levels experienced a moderate increase in their long-term PWB levels. The Correlation Analysis further indicated that neither Hope nor the three Exercise Goals had a significant effect on Goal Attainment. There was also not a significant relationship between one's perceived Goal Attainment and PWB. Besides Physical Exercise Goal's negative, significant relationship with PWB, neither Psychological nor Social Exercise Goals have a significant relationship with long term PWB.

Table 3.16. *Zero- order correlations for Hope, Exercise Goals, Goal Attainment, and PWB with Bonferroni corrections*

	1	2	3	4	5	6
1. Hope	1					
2. Psychological Goals	**.37****	1				
3. Social Goals	.10	.15	1			
4. Physical Goals	-.15	.11	-.05	1		
5. Goal Attainment	.21	.20	.21	-.24	1	
6. PWB	**.54****	.18	.12	-***37****	.33	1

Notes: N = 64. * $\rho < .05$, Bonferroni corrections ** $\rho < .003$

Hope and Exercise Goals Predicting Goal Attainment

A Hierarchical Regression Analysis was conducted to investigate the longitudinal, predictive effect of Hope and Exercise Goals on Goal Attainment. The results presented in Table 3.17 indicated that neither Hope nor any of the Exercise Goals are significant predictors of Goal Attainment after a four month period.

Table 3.17. *Summary of the hierarchical multiple regression analysis predicting Goal Attainment, with Hope and Exercise Goals as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
Hope Scale	.046	.036	.021	.214
Step 2				
Hope Scale	.117	.016	.022	.097
Psychological Exercise Goals		.169	.150	.146
Social Exercise Goals		.201	.167	.154
Physical Exercise Goals		-.162	.144	-.147

Notes: N = 64. Notes: *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 =.03; Equation 2, ΔR^2 =.06.

Hope and Exercise Goals Predicting Longitudinal Well-Being

The Hierarchical Regression Analysis results presented in Table 3.18 indicate that Hope is a significant predictor of PWB, accounting for 28% of the variance after a four month period. However, Psychological, Social, and Physical Exercise Goals did not significantly contribute to the prediction of PWB.

Table 3.18. *Summary of the hierarchical multiple regression analysis predicting PWB, with Hope and Exercise Goals as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
Hope Scale	.290******	.069	.017	**.539*****
Step 2				
Hope Scale	.338	.069	.017	**.477*****
Psychological Exercise Goals		.004	.114	.003
Social Exercise Goals		-.030	.127	-.026
Physical Exercise Goals		-.223	.109	-.231

Notes: N = 64. Notes: *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 =**.28****; Equation 2, ΔR^2 =.29.

Mediation Analysis: Hope, Goals, and Longitudinal Well-Being

The mediation analysis results (see Table 3.19) indicated that Exercise Goals do not mediate the long term relationship between Hope and PWB.

Table 3.19. *Obtained 95% confidence intervals for the indirect effects of Hope on PWB, with Psychological, Social, and Physical Exercise Goals as Mediators*

Predictor Variables	Exercise Goals					
	Psychological Exercise Goals		Social Exercise Goals		Physical Exercise Goals	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
Hope	-.0140	.0177	-.0097	.0053	-.0001	.0317

Confidence intervals not including 0 are marked in bold; 0000 represents an exceedingly small positive value. *ρ < .05, **ρ < .01, ***ρ < .001

Based on the preceding results it can be concluded that Hope did not have an effect on whether or not goals were attained after a four month period. The lack of goal attainment also did not have a significant effect, either positively or negatively, on participant Well-Being. In light of the latter it is surprising though that Hope still had a positive long-term effect on Well-Being.

3.4.3.7. POST-HOC Analysis: Self-Set Goals

Although goal content was measured using the EMI-2 scale, providing information about participants' exercise related goal content as a continuous variable, participants were also asked in this study to express their exercise goals (if they had any). As explained previously this was done for two reasons. First to establish the goals participants are working towards so that progress and attainment could be determined and secondly to gain insight into the content of these self-set goals. In this section we will firstly look at the content of these goals, followed by correlation analysis investigating the relationships between the Self-Set Goals, Hope, and PWB. Lastly, two Regression Analyses will be presented to indicate to what extent Goal Content are predictive of PWB and Goal Attainment.

Content of Self-Set Goals

In order to code the self-set goals in a more descriptive manner, it was decided to categorise goals according to four criteria. The first criterion was the amount of words utilised by participants in the description of their goals. The second criterion relates to the intentions participants conveyed in their goals, specifically related to elements that they wanted to change. The third criterion is associated with relative changes that participants indicate in their goals; related to vague indications

of change (e.g. lose weight). The last criterion is associated with the absolute changes that are related to specific, quantifiable elements (e.g. lose 5kg).

The results indicated that the 238 participants who set goals used a mean of 13.11 (SD = 9.97) words to construct their goals, some using as little as 2 words and some using a maximum of 81 words. The mean number of specific objects that participants mentioned were much less than the number of words used (M = 2.61, SD = .87, Range = 1 - 6). When considering the mean number of changes indicated in the goals, participants were more likely to indicate relative changes (M = 1.75, SD = 1.04, Range = 0 - 5) than absolute changes (M = .50, SD = .79, Range = 0 - 6).

It would be expected that the number of words and the number of objects be related to each other. Similarly, it would be expected that the number of relative and absolute changes be related, as they measure the same underlying factor. Findings from a Pearson's Correlation Analysis provided support for these expectations. As can be seen from Table 3.20, the number of words and the number of objects used by participants to describe their goals were significantly related to each other. As mentioned before, there was also a significant relationship between the relative and absolute changes however, they were negatively related to each other. Whereas relative changes were significantly related to the number of objects participants indicated it was not significantly related to the number of words used. Conversely absolute changes were significantly related to the number of words used by participants, but not the number of objects.

The correlation analysis results further indicate that individuals with high-Hope levels tend to use more words when describing their goals. The significant relationship between Hope and Absolute Changes would indicate that higher Hope might result in individuals pursuing more Absolute/Specific Changes. The significant

relationship between PWB and the Number of Words, as well as the Number of Objects could indicate that the more individuals make use of these descriptive tools in the construction of their goals the higher the possible effect on their PWB. It is however important to indicate that neither Absolute nor Relative Change had a significant relationship with PWB.

Upon examination of the longitudinal results (see Tables 3.21 & 3.22) the Number of Words used to describe goals is significantly predictive of PWB, but not Goal Attainment. However, the Number of Absolute Changes indicated by participants is significantly, negatively predictive of PWB and Goal Attainment. Number of Objects and Number of Relative Changes do not have a predictive effect on PWB or Goal Attainment.

Table 3.20. *Zero-order correlations for Number of Words, Number of Objects, Relative Changes and Absolute Changes with Bonferroni corrections*

	1	**2**	**3**	**4**	**5**	**6**
1. Number of Words	1					
2. Number of Objects	**.54****	1				
3. Relative Changes	**.20****	**.54****	1			
4. Absolute Changes	**.41****	**.22****	**-.44****	1		
5. Hope	**.20****	.12	.04	*.19**	1	
6. PWB	**.26****	*.18**	.09	.11	**.70****	1

Notes: N = 264. *ρ = .05, Bonferroni corrections ** ρ = .003

Table 3.21. *Summary of the hierarchical multiple regression analysis predicting PWB, with four self-set goal content categories as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
No of words	.136****	.03	.01	**.37****
Step 2				
No of words	.140	.03	.01	.31
No of objects		.10	.20	.09
Step 3				
No of words	.141	.03	.02	.29
No of objects		.13	.23	.11
No of relative changes		-.03	.14	-.03
Step 4				
No of words	.212****	.04	.02	**.52***
No of objects		.36	.24	.30
No of relative changes		-.29	.17	-.29
No of absolute changes		-.53	.24	**-.52***

Notes: N = 264. Notes: *ρ < .05, **ρ < .01. For Equation 1, ΔR^2 =.**12****; Equation 2, ΔR^2 =.11; Equation 3, ΔR^2 = .10; Equation 4, ΔR^2 = **.16***.

Table 3.22. *Summary of the hierarchical multiple regression analysis predicting Goal Attainment, with four self-set goal content categories as predictors*

Variable	R^2	β	SE β	Beta
Step 1				
No of words	.015	-.01	.01	-.10
Step 2				
No of words	.024	-.02	.02	-.20
No of objects		.19	.24	.15
Step 3				
No of words	.026	-.02	.02	-.16
No of objects		.13	.27	.10
No of relative changes		.08	.16	.08
Step 4				
No of words	.108*****	.01	.02	.08
No of objects		.40	.29	.31
No of relative changes		-.23	.21	.30
No of absolute changes		-.64	.28	**-.55***

Notes: N = 264. Notes: *ρ < .05, **ρ < .01. For Equation 1, ΔR^2 =.01; Equation 2, ΔR^2 =.02; Equation 3, ΔR^2 = .02; Equation 4, ΔR^2 = **.11***.

It was previously determine that high-Hope individuals tend to have self-set exercise goals that they are working to attain and that having these goals do increase their sense of Well-being. Upon examining these self-set goals it was found that high-Hope individuals use more word when describing their goals which positively affects PWB. However, high-Hope individuals also tend to be more specific

in their descriptions, which have a negative effect on PWB. As such, the extent to which goals are quantifiable do seem to have a negative effect on PWB and Goal Attainment. So it can be concluded that the more specific individuals are in their exercise related goals the more likely it is that they would experience a decrease in their sense of well-being and goal attainment. However, the utilisation of descriptive tools, such as the number of words or objects, does seem to have a positive effect on Well-Being.

3.5. DISCUSSION OF STUDY 1

A four-month longitudinal, correlational study was conducted to explore the influence of future-orientation and personality traits on the perception of well-being, as well as the utilisation of behavioural regulation. Three broad research questions related to future-orientation and personality guided this study. First, determine the extent to which future-oriented constructs (Hope and PGI) could be differentiated, not just from each other, but also from Personality Traits. Second, determine the extent to which the behavioural regulation strategy of goal setting mediates the relationship between future-orientation and well-being, as well as, personality and well-being. Lastly, examine the longitudinal effect of future-orientation on well-being, goal progress, and attainment.

This section starts with a discussion on how future-orientation relates to exercise goals and well-being. There will be a specific focus on the mediating effect of goals and its contribution to the relationship between future-orientation and well-being. The analysis of the content of self-set goals and its relationship with future-orientation and well-being will also be discussed. The discussion will then turn to the longitudinal results with a look at the effect of goal change and attainment. There will

also be a focus on the longitudinal effect of future-orientation on goal attainment and long term well-being. Lastly, the additional analysis with regards to personality traits will be the focus. This will include a discussion on the extent to which it is believed that personality traits already encompass certain future related constructs. However, in order to get to this point in the discussion it is important to understand how future-orientation relates to well-being and why it is important. As such we will start this discussion by focussing on the relationship between Hope and PGI.

3.5.1. Distinctiveness of Hope and PGI

Shorey et al. (2007) argued that Hope and PGI are related but distinct constructs. However, with Shorey et al.'s failure to provide evidence to support the argument that both Hope and PGI make independent contributions to mental health indicators, this assertion was bought into question in this thesis. Figure 3.14 presents a visual representation of the various relationships that were tested during this study. The first research question that was investigated during the analysis phase relates to the relationship between Hope and PGI. The results indicate Hope and PGI to be significantly related to each other, and question the extent to which these constructs are distinct. Results from the EFA indicate a singular, underlying factor containing both Hope and PGI subscales. This gives credence to the argument that both might be measurements of the same future-oriented construct. Interestingly, this one future-oriented component accounted for 59% of the total variance. In order to confirm these exploratory results, CFA was employed. The model that best fit the data supported the EFA findings, indicating that all of the sub-scales were indicative of one future-oriented construct. It should be noted though that the model of best fit, required two error terms to be co-varied. Error terms represent unexplained variance

in models that may be due to systematic, rather than random, measurement error in responses (Byrne, 2013). This systematic error can be a result of characteristics related to the measure or respondents. It is not an uncommon occurrence to allow covariance between two or more error terms, as long as the literature supports the theoretical existence of the relationship. In this instance the two error terms in question were pathways and agency, both of which are the sub-scales for the Hope construct. With both the EFA and CFA supporting the assertion that Hope and PGI measure the same underlining factor, as well as, accounting for almost 60% of the total variance, we were interested to find out to what extend both constructs would contribute to an outcome measure. So when using both measures to predict the same outcome which was the better/stronger predictor?

As indicated in Figure 3.14 we were also interested in finding out to what extent Hope and PGI predict Well-Being. With the ongoing argument in the literature about how individual well-being should be measured (see Gasper, 2004; Diener, 2009; Michaelson, et al., 2009; Forgeard, Jayawickreme, Kern, & Seligman, 2011) it was decided to utilise both major theoretical perspectives, PWB and SWB. PWB refers to the aspects individuals need in order to realise their own potential such as pursuing meaningful goals and growing or developing as a person (Ryff, 1989; Waterman, 1993), while SWB "involves more global evaluations of affect and life quality" (Keyes, Shmotkin, & Ryff, 2002, p. 1007). Thus with PWB there is a distinct focus on what individuals require to live a good life, while SWB is the emotional response to happenings within one's life. Current results support previous research where it was found that PWB and SWB occupy two separate spheres in the measurement of well-being. EFA results indicated that all the PWB sub-scales measure the same underlying construct, similarly the two measures related to SWB,

Satisfaction with Life and Positive Emotion factored onto a separate component, supporting previous results (Biaobin, Xue, & Lin, 2004; Keyes, Shmotkin, & Ryff, 2002; Linley, Maltby, Wood, Osborne, & Hurling, 2009). Negative emotion, however, factored onto a third and separate component. This is not entirely unexpected as negative emotion is the converse of the other two subjective well-being components. Although three components emerged from the EFA, all three were not utilised as separate components of well-being. With negative emotion being the converse to positive emotion it is important to take these emotions into account during testing, however, when dealing with negative emotion during analysis it has always been the practice to create an affect balance (Diener et al., 2009). This affect balance, representing the difference between positive and negative emotions, is then combined with the SWL scale thereby creating the subjective well-being indicator. As such, PWB and SWB were both used as outcome indicators of well-being. When considering the correlations between the two future-oriented constructs and the well-being indicators, it was found that both Hope and PGI are strongly correlated with PWB. The same could be said for SWB, with Hope and PGI significantly correlated with SWB, however compared to PWB the relationships were not as strong. When comparing Hope and PGI's relationship with PWB and SWB it is clear that Hope has the stronger relationship with both.

To further establish the distinctiveness of Hope and PGI, a determination had to be made about which of these two constructs is the better/stronger predictor of well-being. Results indicated Hope to be the stronger predictor of both PWB and SWB. Hope significantly predicted 48% of the variance related to PWB, whereas PGI only contributed an additional 3% variance. Although Hope significantly predicted

SWB, it made a very small contribution (9%). Conversely, PGI did not significantly contribute to the prediction of SWB.

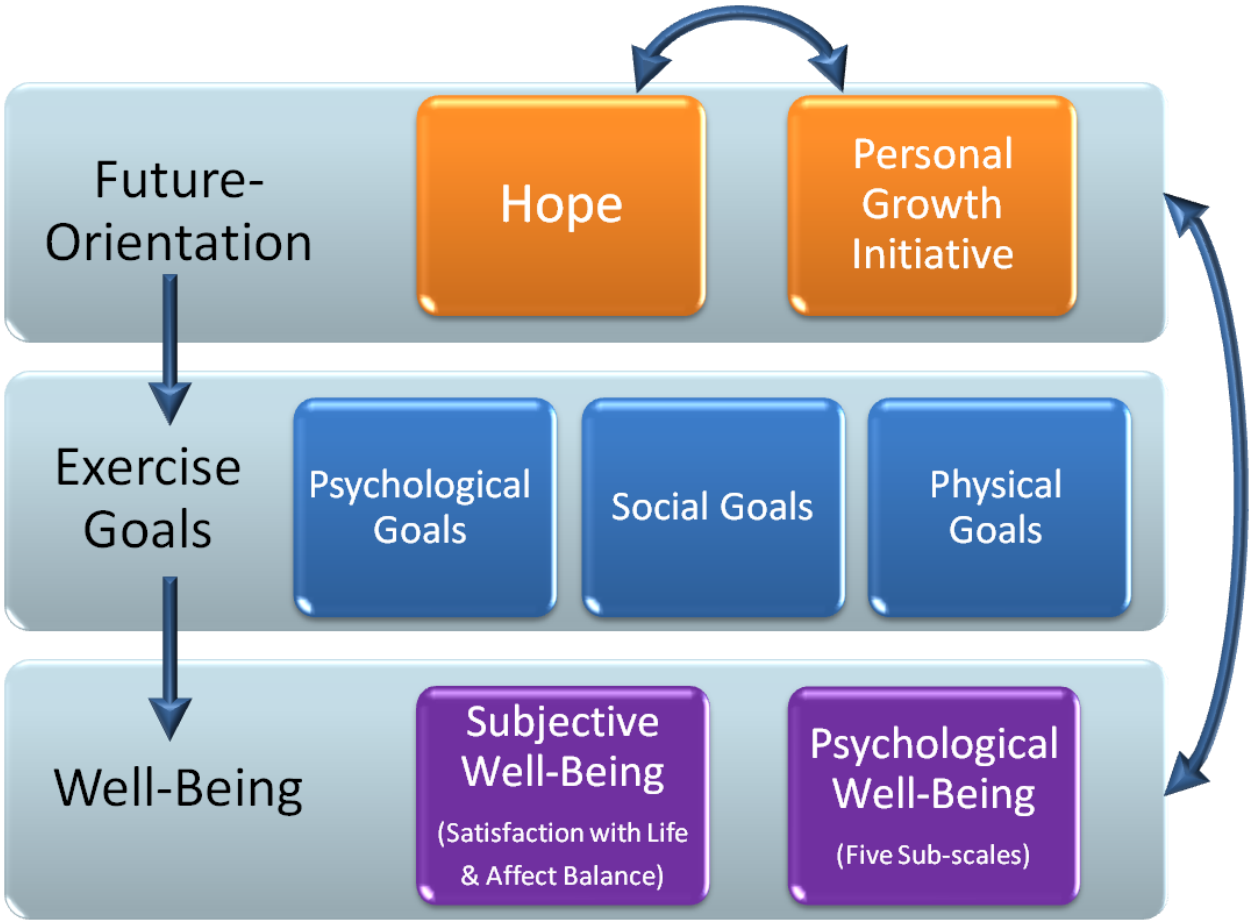

Figure 3.14. *Future-Orientation's Contribution to Well-Being*

Based on these results the conclusion that can be reached is that both Hope and PGI are significantly related to and predictive of PWB, however only Hope significantly relates to and predicts SWB. Nonetheless, the results show Hope to be the stronger predictor of well-being, especially in relation to PWB. Considering the differences between PWB and SWB, these results should not be surprising. PWB's focus is on the future and the various challenges that should be met in order to function positively (Ryff, 1989; Ryff & Keyes, 1995). That is, people attempt to

maintain their individuality in the larger social context (autonomy) and shape their environment so that their needs are met (environmental mastery), amid attempts to build lasting and trusting relationships (positive relations with others). While making the most of their talents and capacities (personal growth), people might also seek the meaning in their efforts and challenges that they face (purpose in life), all while attempting to feel good about themselves, despite being aware of their limitations (self-acceptance). SWB is a more immediate reflection on a person's emotional reactions to experiences and quality of one's life (Lucas, Diener, & Suh, 1996). High-hope individuals know what actions need to be taken in the present to make their desired future a reality. It is thus possible for their focus not to be on their immediate emotional responses to their current circumstances, but rather on the actions required to positively change these circumstances. This then does not discount high-hope individual's immediate satisfaction with life or their emotional reaction, instead it is possible that high-hope individuals are better able to utilise these emotions in a productive way to increase agency and pathway thinking and thus increase goal setting (Snyder, 2002).

Since the aim was to determine whether Hope or PGI are the better predictor of PWB and SWB, the argument can be made that the order in which the predictors were added to the regression models might affect the conclusions reached. That is, if we added PGI into the regression model first it might be just as good in its prediction of PWB, but because Hope was added first it had the opportunity to account for the majority of the variance. In order to test this, an additional regression model was analysed, with PGI added first into the model and Hope last. The results show PGI to also be a strong predictor of PWB, accounting for 31% of the variance and Hope adds an additional 20%. So, if we were to use only PGI in a model predicting PWB

there would be a loss of 20% variance. Considering these results in conjunction with previous findings by Shorey et al. (2007), where it was found that PGI's only contribution to the prediction of well-being indicators were through Hope with no direct influence of its own, it would seem the assertion that PGI does not make an significant additional contribution to that of Hope is supported.

Considering both Hope and PGI are strongly related to and more predictive of PWB, than SWB, it was of interest to examine how these two future-oriented constructs would relate to behavioural regulation strategies, such as goal setting, and to what extend this would influence PWB. As shown in Figure 3.14, Psychological, Social, and Physical Goals were hypothesised to mediate the relationship between Hope and PWB, as well as PGI and PWB. Although the relationship between Hope and PWB is partially mediated by goal setting, Hope still had a direct effect on PWB. The PWB of high-hope individuals tend to be influenced by Psychological and Social Goals, but not Physical Goals. Psychological Goals set by high-hope individuals positively increase PWB, conversely Social Goals decrease PWB. Upon examining the relationship between the three types of exercise goals and PWB, a discrepancy between the regression and mediation results was observed. Whereas the mediation model indicated that Psychological Goals contribute significantly to PWB, the regression results showed Psychological Goals to not significantly predict PWB. However, when considering that the correlational results indicated a weak but highly significant relationship between Psychological Goals and PWB, an alternative explanation needs to be found for the inconsistency between the mediation and regression model. A similar discrepancy was found for Physical Goals. Where the mediation results showed Physical Goals did not significantly mediate PWB's relationship with either Hope or PGI, the regression

model indicated Physical Goals to be a significant, negative predictor of PWB. In this instance correlational results indicate that there was no significant relationship between these two variables. Interestingly though, in the regression model where all three exercise goals were entered prior to Hope, Psychological Goals made a significant, positive contribution to PWB. However, when Hope was entered into the model during the next step the significance changed. Markland and Ingledew (2007) define goals such as enjoyment and stress relieve as Psychological Goals, while goals such as affiliation and social recognition are defined as Social Goals. Whereas Psychological Goals can be perceived as internal, Social and Physical Goals can be perceived as external in their motivational control. Vansteenkiste, Lens, and Deci (2006) suggest that internal goals are those that are pursued for the satisfaction associated with the activity itself. Conversely, external goals are pursued with the aim of engaging in activities for the purpose of obtaining something separable from the activity. In the current study results indicate that individuals with greater Hope and PGI tend to pursue exercise goals for no other reason than the satisfaction that exercise brings. As a result they also experience higher PWB. In contrast, high-Hope individuals who pursue exercise goals because they want to lose weight or require social recognition experience a decrease in PWB. Although this provides an explanation for the relationship between future-orientation, goals, and well-being it does not explain the discrepancies between regression and mediation analyses. These discrepancies should be the subject of future research.

Bearing in mind all the above mentioned results, Hope tends to emerge as the future-oriented-construct with the stronger relationship and ability to better predict both PWB and SWB. This in conjunction with evidence indicating a single, underlying future-oriented component lends credence to the assertion that Hope and PGI do not

make unique, independent contributions to the prediction of well-being. Instead, Hope for the current sample, consisting of exercisers, appears to be the construct of choice when testing individuals' future-orientation.

3.5.2. Independence of Personality Traits

With Hope established as the stronger future-oriented construct, we next questioned future-orientation's independence from personality in its prediction of well-being. In Figure 3.15 it can be seen that we were interested in finding out to what extent Hope would be predictive of Well-being when Personality is controlled for. After establishing that Hope's relationship with PWB is partially mediated by Psychological and Social Exercise Goals, it was also of interest to determine if the relationship between Personality and PWB would be mediated by the exercise goals. With results indicating that individual's Hope levels made a big contribution to their PWB (and slightly to SWB), the question became to what extent is this future-oriented mindset independent from personality. In order to answer this, an EFA was conducted, and as expected the results indicated the three Eysenck personality traits factored onto the same underlying factor, thus signifying a personality component. However, surprisingly Hope also factored onto this personality component. While Neuroticism and Psychoticism loaded negatively onto the component, Extraversion and Hope loaded positively. With Hope factoring onto the same component as the three Personality traits, it could be indicative of Hope being some personality related trait. This would be in accordance with Snyder's theory (Snyder, 1995; 2002) that Hope is a trait-like instead of a state-like construct. So, it becomes important to establish if Personality and Hope utilised in the same model would make independent contributions to the prediction of an outcome variable.

As in the case of Hope and PGI's prediction of SWB, it was found that Personality and Hope made only a slight contribution to the increase of SWB. Conversely, in their predictions of PWB, personality traits accounted for the majority of the variance, however, importantly, Hope's contribution amounted to an additional 19%. It can thus be said that individuals' personality traits and Hope levels contributed 67% of the variance in PWB. In support of previous research (Keyes, Shmotkin, & Ryff, 2002), Neuroticism and Psychoticism are negatively associated with PWB, while Extraversion and Hope are positively associated with PWB. If personality is a genetically, predisposed construct that is fairly stable, and Hope in turn is a human strength subject to change, it would suggest that only some degree of change can take place in well-being. With personality traits being rather stable one could infer that the variance they account for in well-being is just as constant. However, recent research (Boyce, Wood, & Powdthavee, 2013) has indicated that personality does in fact change over time and should not be seen as a stable construct. However, a question that still remains unanswered is the extent to which individuals are aware of these changes that take place in their personality structure. Conversely, Hope viewed as a strength would be subject to individual modification and is thus within the individual's power to change (Snyder, 1995; 2002). This malleable trait will provide individuals with the ability and autonomy to change their well-being, through the use of behavioural regulation in the form of goal setting. As was indicated previously in this discussion, high-Hope individuals tend to set psychological goals that significantly increase their well-being. So, in order to investigate if certain personality traits are more likely to be related to behavioural regulation, a mediation analysis was conducted (see Figure 3.15). Results indicated that the well-being of individuals who scored higher on the extraversion and

psychoticism indicators were not positively influenced by Psychological, Social, or Physical Goals. Well-being of individuals with more neurotic tendencies was also not influenced by Social or Psychological Goals, however Physical Goals did significantly decrease their well-being.

In summary, with both Personality traits and Hope supporting an underlying personality structure, both make greater contributes to PWB than SWB. Upon closer examination of the contributions made to PWB, Personality emerged as the greatest contributor in comparison to Hope.

Thus far, it has been established that both Social and Physical Goals are negatively related to PWB, while Psychological Goals are positively related to PWB. High-hope individuals who set Psychological Goals experience an increase in well-being, if they set Social Goals their well-being decreases, and that Physical Goals have no influence on the relationship between individual's Hope and well-being. These results established Hope's relationship with PWB, and provided evidence for the mediating effect goals might have on this relationship. By determining goal's influence on well-being it is also of interest to examine the degree to which goals might be changed or attained over time. In order to gain insight into the types of goals individuals set, participants were asked to indicate their self-set goals.

Figure 3.15. *Illustration of the relationship between Future-Orientation, Exercise Goals, and Well-Being*

The EMI-2 measure provides researchers with a singular insight into various goal types, based on predetermined reasons for exercise (Markland & Ingledew, 1997). Presenting participants with this predetermined list, insight is gained into the conscious and unconscious exercise motives held by individuals. Whereas the EMI-2 might measure unconscious reasons for exercise, self-set goals is a way to determine the reasons for exercise that are consciously thought about every day. Although the majority of participants could indicate self-set goals, there were some who could not provide goals. Those individuals who could indicate goals are also those who had high-hope levels, indicating the importance of Hope in the development of goals. The importance of the presence of goals in individual's lives can also be noted in the significant effect found in PWB. Those who were working towards something had significantly higher PWB levels than those who did not have goals. These findings support previous research (Brunstein, 1993; Emmons &

Diener, 1986) where it was indicated that the mere presence of goals have a positive effect on well-being.

From this it can thus be concluded that individuals with higher Hope levels tend to have goals they are working to attain, and that the presence of these goals increase their sense of well-being. In view of these findings certain questions still remain unanswered for instance, is goal's positive effect on PWB a longitudinal effect, do individuals make changes to their goals over time, and do they attain their goals. To answer these questions, self-set goals were utilised as a way of determining goal change and attainment.

3.5.3. Goal Change and Attainment

Participants were presented with their self-set goals on two occasions subsequent to the initial assessment, in order to determine if goal change occurred and to what extend goal attainment took place. Sixty four percent of participants who took part in the second assessment indicated that they did not change their goals and 36% indicated that change occurred. As indicated in Figure 3.16 this study attempted to determine whether or not Hope levels had an effect on goal change, and if goal change had an effect on goal attainment. There was no indication that individual's Hope levels had an influence on changes made to goals during the second assessment. Goal change or the lack thereof also had no effect on participant's indication of goal attainment.

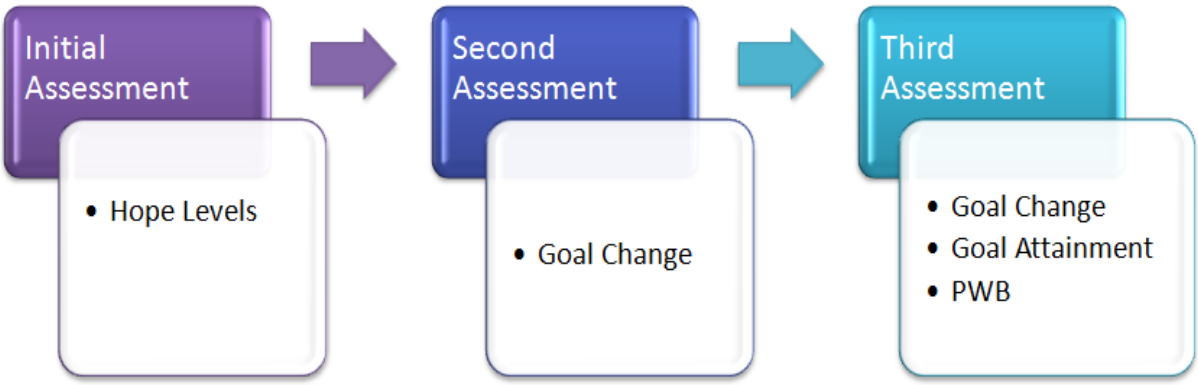

Figure 3.16. *Relationship between Future-Orientation, Goal Change, and Goal Attainment*

During the third assessment participants were asked to provide two indications related to their goals. After being presented with their self-set goals (as indicated two months earlier), they were asked to indicate if any changes were made. Participants were also presented with two additional items related to goal attainment. The first enquired about the extent to which participants believe to have accomplished what they set out to do and the second question asked about the amount of progress they have made towards attainment. Essentially two conditions were tested, goal change and goal attainment. Differentiating between these two processes are important in order to understand the subsequent results.

Similarly to the second assessment, 66% of the participants indicated that they did not change their goals during the previous two months and 34% indicated that they did. It would have been expected that goal attainment would be higher for those who changed their goals, however this would only be true if the goal change is a consequence of attainment, resulting in the setting of new goals. The results did not support this assumption, as it was found that individuals who changed their goals did not indicate a significantly higher attainment rate or sense of well-being. Thus,

any changes made to goals over the four month period were for reasons other than attainment. Figure 3.13 provides an indication of the distribution of these reasons. However, those who have a greater sense of attainment experience an increase in well-being. There might be two explanations for these contrary findings. The self-set goals identified might be related to qualitative/internal reasons for exercise (e.g. stress management or enjoyment) and not quantitative/external reasons (e.g. weight loss or strength increase). In such cases participants might indicate that the goal has been attained, explaining the increase in well-being, but not changed because stress relief or enjoyment still remains the continuous goal. It is also possible that individuals did not change their goals because of a lack of attainment. However, they still like to indicate attainment to some extent, because by not doing so they admit failure. Consequently, by indicating a degree of attainment individuals do in fact experience an increase in well-being.

Hope did not significantly predict Goal Attainment, supporting correlational results that indicated no significant relationship between Hope and Goal Attainment. Despite the fact that high-hope individuals are not more likely to attain their goals, than their low-hope counterparts, high-hope individuals do tend to experience a greater sense of well-being in the long term. That is, Hope significantly predicted PWB over a four month period, contributing almost 28% of the variance in long term PWB.

Thus, despite the fact that future-orientation does not seem to significantly contribute to exercise goal change or attainment over time it is an important contributing factor to well-being. The same can be said for individual's beliefs about attainment. Essentially, future-orientation is about the belief that you can change the future through your own actions. Even though you do not ultimately attain the goals

you set for yourself, your belief that some progress or attainment took place does have an effect on your well-being. So why is it that our way of thinking has this positive effect on our mental health, even when faced with failure, such as not completely attaining goals?

Hope's positive direct effect on PWB can be explained when considering the agency component and the power it holds. Optimism about the future is intertwined with the belief that more positive than negative events are likely to take place (Sharot, 2011). It is not that individuals convince themselves that everything will magically be better, but rather they believe to have the ability to make it so. This optimism bias contributes to individuals being "more optimistic than realistic" (Sharot, 2012) As part of the Hope construct, agency thinking refers to the belief in one's capacity to use the pathways that were developed to reach that desired goal (Snyder, 2002). It's about remaining positive and motivated, even when faced with the possibility of failure. And although this bias seems to be irrational on one level, it also serves as a protective factor. Research (Sharot, Riccardi, Raio, & Phelps, 2007; Strunk, Lopez, & DeRubeis, 2006) has indicated that individuals who lack the neural mechanism that underpins this optimism bias are more realistic about future predictions; however they were also suffering from depression. So being optimistic enables us to imagine better alternative realities, it provides us with the belief that we can achieve them, and empowers us to move forward, instead of focusing on our failures and current unwanted circumstances.

3.5.4. Goal Content of Self-Set Goals

With analysis showing that the goals (Psychological, Social, and Physical Goals) identified through the use of the EMI-2 did not contribute to either Goal

Attainment or longitudinal PWB, an ensuing question is whether or not the effect of the self-set goals would be any different. As such, the decision was made to code the content of the self-set goals to establish if a relationship exists between self-set goals and goal attainment, as well as self-set goals and well-being.

The more words used to describe goals, the more objects (intensions) will be added, which in turn is related to an increase in relative and absolute changes. The number of intensions individuals note in their goals is directly related to a moderate increase in relative changes individuals make. Contrary to this, the number of absolute changes is not related to the number of objects noted. It would seem that the more participants work towards Relative Changes, the less Absolute Changes are indicated and vice versa. Thus, participants perusing goals that are more qualitative (internal) in nature do tend to set less quantitative (external) goals. A significant relationship between PWB and the Number of Words, as well as the Number of Objects could be indicative of an increase in PWB if individuals make more use of description in the construction of their goals. Results indicated that the number of words used to describe goals is in fact predictive of long term PWB, partially confirming the above assumption. It was also found that the Absolute Changes decrease long term PWB, as well as Goal Attainment. Thus, by quantifying their goal content individuals decreased their chances of attainment and as a result decreased their well-being. It is possible that by quantifying their goals individuals set a standard that is very difficult to meet and failure to meet that standard result in a decrease in well-being. This then brings into question individuals ability to set realistic goals.

The conclusion that can be reached is that the content of goals might be important during the construction phase of goal setting. Although the number of

words used by participants did not add to goal attainment it did positively influence well-being. Conversely, the extent to which individuals quantify their goals have a negative influence on both goal attainment and well-being.

3.6. SUGGESTIONS FOR FUTURE RESEARCH

Finally it is worth noting that there are several suggestions that can be made with regards to future research. The first of which is related to the method utilised. The longitudinal nature of this study was only restricted to four months due to external constraints. The argument could be made that a longer period of time might have presented participants with more time to either make progress towards or attain their goals. With this being a longitudinal study, the second method related suggestion for future research pertains to attrition rates that were fairly high for the second and third assessments. Future research might attempt to minimise the effect of an attrition rate, either through recruiting a larger initial sample or changing the method in such a way that secondary information can be gathered independent of participants' involvement. Although the results of this study bring into question the distinctiveness of Hope and PGI for an exercise population, caution has to be urged concerning attempts to generalise to other populations/settings. Comparing these two constructs in samples drawn from various populations would thus broaden our knowledge regarding the uniqueness of these constructs. A note of caution that should be considered in future research involves the PGI measure itself. The items that constitute the scale are repetitive and as such might influence the responses provided by the participants. Although this should be a concern in any study that either utilised the measure or examined its effectiveness when compared with other measures, the PGI measure would have to be used. This however complicates the

interpretation of results stemming from the measure, as any results should be interpreted with caution. In the present study we attempted to mix the items in such as a way that repetition was minimised, keeping in mind that items from the same sub-scale be separate. Yet another recommendation relates to the measure of goal attainment utilised in this study. Since participants in this study indicated their own sense of goal attainment the results were not quantifiable, and as such goal attainment could not be confirmed by the researcher. Future research concerning the attainment of goals should attempt to include quantifiable processes. The last suggestion touch upon the results gained when examining the relationship between Hope and personality traits. It is possible that Hope's relationship with the Eysenck's personality traits in this study exist to that extent because the measure used were not comprise of the Big-Five indicators, thereby lacking some of the more widely excepted personality traits. Conscientious individuals tend to be responsible, persistent, planful, and orderly, while individuals who score high on the openness-to-experience trait are typically quicker to learn, creative, and insightful (Caspi, Roberts, & Shiner, 2005). It should be considered that traits such as conscientiousness and openness-to-experience already account for the future-oriented perspective provided by constructs such as Hope. Future research should thus include both Hope and the Big-Five personality traits in order to gain a more thorough understanding of the possible separate contributions made by future-orientation and personality type.

Utilising a second point of contact in the longitudinal study that fell between the first and the second were aimed at assuring any change in goal setting and attainment were recorded. However, using an interim assessment could have resulted in participant overexposure which might have negatively influenced their continuous participation. The choice of utilising an electronic questionnaire that

recruited participants online contributed to the attrition rates on the longitudinal study. It could be argued that development of a certain relationship between the researcher and participant might help in assuring participants continuous participation during a longitudinal study. With the use of an online questionnaire the human element to research were lost and with it participation. The sample size of the longitudinal phase of Study 1 could have benefitted from a larger sample since some of the analyses, but not all, were underpowered. However, it should be noted that the studies presented in this thesis were exploratory in nature and were not funded, limiting the resources that could be utilised during the recruitment phase. Furthermore, Multiple imputation is (Pigott, 2001) considered to be a more effective method when dealing with missing data. In future research it might be more beneficial to consider multiple imputation as an alternative to median imputation as were the case in the current study.

3.7. CONCLUSION

The results in the current study provided preliminary evidence questioning the distinctiveness of Hope and PGI. It has also been indicated that Hope and PGI are related to Psychological Exercise Goals that in turn increases Eudaimonic Well-Being. Findings related to dispositional traits, as defined by Eysenck, and Hope indicate that both contribute strongly to Eudaimonic Well-Being and less so to Hedonic Well-Being. Although longitudinal results did not provide evidence for Hope's contribution to the attainment of goals, it did support the assertion that Hope increases long-term prediction of Eudaimonic Well-Being. Additionally, this study highlighted the need for the inclusion of the Big-Five personality traits, as well as, an independently verifiable, quantitative goal attainment methodology.

Accordingly, subsequent research will expand on findings reported in Chapter 3 in several ways. It is important to replicate findings especially in today's research climate. Secondly, since the current study utilised an exercise population findings cannot be generalised to other domains. Subsequent research will thus be conducted in a domain other that exercise, but that still requires goal setting. Thirdly there is a need to include a more comprehensive measure of personality traits. As such, a Big-Five trait measure will be utilised in future research aimed at determining the relationship between characteristic adaptations such as Hope and traits. Since the use of a self-assessed goal attainment measure in the current study highlighted the need for an objective measure of goal attainment, the final aim will be to objectively verify the attainment of goals.

Chapter 4

STUDY 2: THE EFFECTS OF PERSONALITY, FUTURE-ORIENTATION, AND GOAL SETTING ON WELL-BEING

4.1. INTRODUCTION

As acknowledged in preceding chapters this thesis differentiates between two streams of inquiry regarding positive psychological functioning (Deci & Ryan, 2008; DeNeve & Cooper, 1998; Diener, Suh, Lucas, & Smith, 1999; Kahneman, Diener, & Schwarz, 1999). The first stream emphasises the role of basic personality traits in the prediction of mental health, while the second stream emphasises the role of human strengths (Seligman & Csikszentmihalyi, 2000; Snyder et al., 2002) or what McCrae (2011) refers to as characteristic adaptations. Whereas dispositional traits are seen to be fairly stable and resistant to change, characteristic adaptations are viewed as malleable constructs that can be utilised in the increase of positive psychological functioning (McCrae, 2011). In this thesis future-orientation is proposed as a characteristic adaptation and is defined as individuals' ability to construct subjective images about the future with the purpose of increasing performance, personal growth, and well-being (Seginer, 2009). Two constructs, Hope and PGI, are utilised in this thesis to define and measure future-orientation. Central to these constructs is the ability to set and attain goals to such a degree that the desired future becomes a reality. The subsequent increase in performance and personal growth will also bring about an increase in well-being (Snyder, 2000). When individuals have the benefit of optimal psychological functioning and experience, in such a way that it transcends everyday interpersonal introspection they are

considered to have positive mental health (Ryan & Deci, 2001). As a result of the amount of research that has been carried out in the domain of well-being, an array of theories have evolved, each with its own core concepts and purpose. However, in their integrative review on well-being research Ryan and Deci (2001) clearly recognize two main perspectives within the literature, the first dealing with happiness and the second dealing with human potential (also see Waterman, 1993). In the present study we recognise and draw on the distinction between hedonic and eudaimonic well-being.

Since the interaction between future-orientation, dispositional traits, goal setting, and well-being have been thoroughly discussed in Chapter 1, 2, and 3 another discussion of these constructs and their relationships seem redundant. The current chapter will thus focus on reviewing the main findings related to the study presented in Chapter 3 as well as the suggested research aims that emerged from these findings. This will be followed by a discussion on the objectives of the current study in relation to the findings from Chapter 3.

Three of the main findings reported in Chapter 3 influence the current study. The first of which was the determination that Hope, instead of PGI, is the more effective future-oriented construct due to its ability to better predict outcome measures such as well-being. Similarly, the study also indicated Hope's ability to uniquely contribute to well-being beyond the contribution made by basic personality dispositions. It was also concluded that Hope is predictive of goals and longitudinal well-being, but not the attainment of goals. The interpretation of subsequent findings resulted in the identification of several suggestions for future research with the intent of expanding upon and substantiating the results. The current study takes these suggestions into consideration and will focus on accomplishing four aims. The first of

which is the corroboration of findings from Chapter 3. There will be a change in the domain of interest for the current study with the intention of increasing the extent to which findings from Chapter 3 can be generalised. Furthermore, there will be a more objective measure of participants' goal attainment. Finally, the current study will include a more comprehensive measure of personality traits in the form of the Big-Five.

A primary aim of this study is the extension of findings presented in Chapter 3. These findings suggest that Hope makes a substantial contribution to individuals' well-being, beyond that of personality traits, specifically, in addition to the influence of the Big-Three (Extraversion, Neuroticism, and Psychoticism; Eysenck, 1991). Based on the initial support for Hope's supplementary contribution to well-being it can be argued that Hope is not a mere replication of Extraversion, Neuroticism, or Psychoticism, but that it does make a unique contribution to outcome measures. However, these findings are only limited to three personality traits and do not include some of the more widely accepted dispositional traits such as Agreeableness, Conscientiousness, or Openness (McCrae & Costa, 2008). Although Eysenck (1991) argue for the Big-Three's superiority over the Big-Five, Goldberg and Rosolack (1994) do not agree. Whereas, Eysenck (1991) posit that Agreeableness and Conscientiousness are facets of Psychoticism, Goldberg and Rosolack (1994) argue that this supposition cannot be verified through independent research. So, due to the limitation associated with the Big-Three, Hope's contribution to PWB and SWB can be brought into question. This is due to possible similarities that might exist between future-oriented constructs and some of the Big-Five traits. For instance, it is theoretically possible that the variance accounted for by Hope in the prediction of PWB and SWB are already accounted for by traits such as Agreeableness,

Conscientiousness, or Openness. Two central concepts of Hope are the ability to stay motivated when faced with obstacles and the ability to generate ways around those obstacles (Snyder, 2000). Similarly, individuals who are conscientious tend to be persistent, planful, orderly, responsible, careful, and attentive to detail (Ashton & Lee 2001; Caspi, Roberts, & Shiner, 2005; Hogan & Ones, 1997). It is thus possible that Conscientiousness already include some element of future-orientation. It is thus the aim of the current study to distinguish between the Big-Five traits and the future-orientated constructs Hope and PGI in their prediction of outcome measures such as PWB and SWB.

Another aim of this study is to corroborate findings presented in Chapter 3, as well as increase the extent to which the results can be generalised. This is especially important considering the recent debate in social sciences about the trustworthiness of scientific findings (see John, 2011; Lehrer, 2010). Although already mentioned above there are several results that are in need of corroboration. Besides the ability of future-oriented constructs to account for unique variance not accounted for by dispositional traits there are several findings that are of particular importance. The first of these is the results related to the differentiation between Hope and PGI. A difference was also indicated in the future-oriented constructs and trait's ability to predict well-being. For instance, Hope and personality traits predict eudaimonic well-being to a greater extent that hedonic well-being. Additionally, considering Hope's contribution to the attainment of goals it was found that although Hope contributes to longitudinal well-being it does not contribute to goal attainment. These findings, however, can only be considered as preliminary evidence and can be questioned based on the fact that a singular study was used to formulate conclusions. As such the current study aims to provide corroborating support for these preliminary

findings. Similarly, to increase the confidence associated with the findings the results need to be generalised to other domains.

As already mentioned it was concluded in Chapter 3 that Hope does not predict exercise goal attainment. However, goal attainment was operationalised using a self-assessment measure (Feldman, Rand, & Kahle-Wrobleski, 2009; Sheldon & Elliot, 1999; Judge, Bono, Erez, & Locke, 2005). The possibility thus exist that participants own assessment of goal attainment might have influenced the findings. As such, the current study aims to counteract this possible influence by employing an objective measure of goal attainment. The researcher will thus be able to independently verify whether goal attainment took place.

Similar to the study reported in Chapter 3, participants in the current study will be requested to take part in the setting of goals. The aim is not to impose goals but instead to gather information on participant's already existing goals. This will indicate the extent to which stable personality traits and the more malleable human strengths influence the goals individuals set and attainment. With the aim of determining attainment objectively instead of subjectively, it is necessary to recruit a sample from a population that will pursue similar, measurable goals over a fixed period. Since the findings reported in Chapter 3 were based in an exercise domain the current study will endeavour to recruit a sample from another behavioural domain. Considering that one of the central research questions associated with this study centres around goal attainment the domain of choice still needs to highly goal oriented. As such, the study will recruit participants who are currently pursuing an academic career at a tertiary institution. This sample will be beneficial in two ways. Firstly, university students are by definition all working to obtain what Latham (2003) refers to as a superordinate goal. That is, they are all pursuing a degree in their academic field.

For the purpose of this study, though, the focus will be on their semester goals, that is to say the grades they which to achieve. This then brings us to the second benefit of utilising this behavioural domain in that it allows for the grades to be independently verified.

Traditionally academic success has been predicted by making use of intelligence indicators (Gottfredson, 2004; Kuncel, Hezlett, & Ones, 2001). However, in recent years contemporary studies started to investigate the relationship between personality and academic achievement (Chamorro-Premuzic & Furnham, 2003; Ferguson, James, O'Hehir, & Saunders, 2003; Paunonen & Ashton, 2001). For instance, a positive relationship between Conscientiousness and academic performance has consistently emerged (Chamorro-Premuzic & Furnham, 2003; Duff, Boyle, Dunleavy, & Ferguson, 2004; Furnham, Chamorro-Premuzic, & McDougall, 2003). This is not surprising considering that conscientious students can be described as hard working, tenacious, and achievement orientated (Ferguson et al., 2003). Similarly, research also indicated human strengths to have an influence on academic performance. According to Snyder (2002) Hope influences cognitions related to goal pursuit independently of situation specific information. So in an academic setting that would mean students with higher Hope will have greater expectations for their performance, independent of class specific information such as difficulty of course material, lecturer quality, and previous academic performance. This hypothesis was supported by Rand (2009) who indicated Hope to have an indirect influence on academic performance, contradicting previous research (Snyder, 1994; 2002) suggesting a direct relationship. In a study of 345 undergraduate students it was establish that the influence of Hope on academic

performance was mediated through goal-specific expectancy. So, higher Hope might increase expectations which in turn facilitates higher performance.

With the indications that traits and strengths influence academic success there is a need to understand whether student behaviour is either autonomous or controlled, as this might possibly have implications for success. In order to understand the conscious intentions or goals that direct student behaviour (Dweck & Elliott, 1983), as well as, the standards these students use to evaluate their success (Pintrich, 2000), the achievement goal theory is utilised. Students can pursue learning goals where the main concern is the development of personal competence or the mastery of a subject. Alternatively, students can pursue performance goals where the primary objective is to demonstrate superior performance compared to others. It was initially supposed that performance goals are negatively predictive of classroom outcomes conversely to mastery goals (Ames, 1992). Subsequent research has proposed that students approach or avoidance motives need to be considered if we are to fully understand their achievement motivation (Elliot, 1999; Elliot & Church, 1997). Thus, a student that anticipates success and believes he/she has the competence required to succeed will set approach related goals. Whereas a student that anticipates failure because he/she does not feel competent will set goals related to avoidance (Elliot, 1999). This then provides a four-fold achievement goal classification (Elliot & McGregor, 2001). A competitive goal to outperform one's peers (performance-approach goals), a goal that results from the fear of performing worse than one's peers (performance–avoidance goal), a goal to develop personal competence (mastery-approach goal), and a goal that results from the fear of personal incompetence (mastery-avoidance goal). Subsequent research indicated that not all performance goals are problematic. With the distinction made between

performance-approach and performance–avoidance goals, it would seem that performance–avoidance goals are negatively associated with outcomes for learners, while performance-approach goals are both negative and positively associated with learner outcomes. The latter thus seems to be more adaptive in educational environments. Although there is variability in the results a discernible pattern can be identified. Performance-approach goals have been found to positively predict performance (Elliot & Church, 1997; Lopez, 1999), while performance-avoidance goals negatively predict performance (Church, Elliot, & Gable, 2001; Elliot & McGregor, 2001; Vansteenkiste et al., 2004). Results related to mastery goals vary somewhat. However, it can be deduced from previous findings that mastery goals are sometimes positive predictors of performance and are at times unrelated to performance. This however depends on the task type, the type of analysis conducted, and the age of participants (Pekrun, Elliot, & Maier, 2009).

In the current study where students will be asked to indicate their performance goals it is hypothesised that performance-avoidance goal motivation will negatively relate to goal attainment, while performance-approach motivation will positively relate to attainment. Unfortunately, in most tertiary institutions student performance is measured or determined not through student's perceived mastery of a subject or their own personal competence, but instead through their achieved grades. Since the goals in question in this study are performance goals (i.e. module grades) it will be expected that learning goals will be unrelated to expected grades and goal attainment.

4.1.1. Research Hypotheses

The purpose of the current study is fourfold. The first aim is to observe whether findings from Chapter 3 can be generalised to a different domain, other than exercise. Specifically, the intent is to corroborate findings from Chapter 3 which indicated Hope to be the better predictor of positive psychological functioning when compared to PGI. Another aim is to investigate whether Hope still accounts for unique variance in the prediction of psychological functioning if the Big-5 personality traits are utilised. A fourth aim is to determine whether future-orientation and traits are related to objective measures of goal attainment. In particular, the following hypotheses will be tested:

Hypothesis 1a. Hope and PGI will be significantly independent of each other.

Hypothesis 1b. Hope, as opposed to PGI, will contribute significantly to the prediction of Psychological Well-being.

Hypothesis 1c. Hope, as opposed to PGI, will contribute significantly to the prediction of Subjective Well-being.

Hypothesis 2a. Future-Orientation and Personality Traits will be significantly independent of each other.

Hypothesis 2b. Future-Orientation constructs will make a unique contribution to well-being, not accounted for by the Big-Five Personality Traits.

Hypothesis 3a. Future-Orientation constructs will contribute significantly to Expected Goals, after Personality Traits have been controlled for.

Hypothesis 4a. Future-Orientation constructs will contribute significantly to Goal Attainment, after Personality Traits have been controlled for.

4.2. METHOD

4.2.1. Population and Sample

Participants were sampled from the student population at of Abertay University. The final sample was a diverse group of 92 women and 25 men ranging in age from 17 to 40, with a mean of 19.8 (SD = 3.33).

4.2.2. Statistical Power

To estimate the sample size that will be required in this study priori power analyses were conducted using the software package, G*Power (Faul, Erdfelder, Buchner, & Lang, 2009). Sample size estimation is dependent on several elements such as the alpha level (α), effect size, predictive power, and whether a one or two-tailed statistical test is used.

Considering the correlational analyses that will be conducted in this chapter the effect size required will be determined using the following recommendations: r = .10 (small effect); r = .30 (medium effect); r = .50 (large effect, Cohen 1992, 1988). With an alpha of .05 and effect size of .50, the projected sample size needed for a large estimated power (1 - β) is approximately 26 participants. When considering regression analyses the recommended effect sizes used for this assessment were as follows: small (f2 = .02), medium (f2 = .15), and large (f2 = .35; Cohen, 1992,

1988). The alpha level used was $p < .05$ and estimated power ($1 - \beta$) was .80. The largest hierarchical multiple regression analysis proposed for this study will contain 18 predictors. With an alpha of $p < .05$, an effect size of .35, and estimated power ($1 - \beta$) of .80, a sample of at least 74 will be required. Taking all the above into consideration a sample size of 100 will be adequate for the main objectives of this study. In this study the 10:1 ratio rule of thumb (Everitt, 1975; Nunnally, 1978; Costello & Osborne, 2005) suggested in Study 1 will also be employed to estimate sample size. Since the biggest EFA proposed for this study will contain 11 variables it can be assumed based on the rule of thumb that a minimum sample of 110 will be required.

4.2.3. Study Design

A longitudinal design was used to explore the relationship between future-orientation, personality traits, goal setting, and attainment of goals. Participants completed various measures during the initial assessment including items related to academic goal setting. In order to determine goal attainment the academic grades of each participant was obtained.

Since the generalisability of both Hope and PGI across life domains has been discussed in both Chapters 1 and 2 we will not review this again. However, it is important to discuss the appropriateness of the sample choice for this study. Even though this study will make use of convenience sampling the choice of population was deliberate. As mentioned before Hope and PGI are very much concentrated on the intentionality of behaviour and having the motivation to follow through on behavioural choices. The study presented in Chapter 3 utilised a sample of exercisers based on the need for a group of individuals who are engaging in

behaviour that is intentional and require motivation. In the current study the same parameters are used to decide on the population from which to recruit. University students are a group of individuals who are engaging in fairly similar behaviour during the same time frame with a fairly similar outcome in mind. Therefore, the current study will recruit students.

4.2.4. Recruitment Strategies

The sample in this study was recruited from various year groups within the School of Social and Health Sciences. Although students were recruited from the various year groups, participants from the first year group were recruited as part of a mandatory project that formed part of the Research Methods in Psychology (PS0711a) module. First year psychology students are required to participate in four research studies over a one year period. Participation in and reflection on these studies are worth 10% of the students' final grade. Although participation is mandatory, students were able to choose the studies that they wanted to participate in from a pool that contains various research studies conducted by the staff at Abertay University.

4.2.5. Procedure

The study was presented as an assessment of academic goal setting and the effects on well-being. Participants were informed that data collection would take place at two time points, during the academic year. Participants completed a series of questionnaires assessing their personality, academic goals, future-orientation, and well-being. The booklet they were handed contained the following questionnaires: Personality Questionnaire; the Trait Hope Scale; the Personal Growth Initiative

Scale-ll (PGIS-ll); Achievement Goal Questionnaire; Well–Being Questionnaire, and the Goal Survey.

After agreeing to participate each participant was asked to read the information sheet and complete a consent form (see Appendix F). The consent form provided the researcher with permission to use the data gained from the questionnaires for research purposes. It also requested participants' to indicate if they would be willing to provide consent for the academic supervisors of this project to access their student records in order to extract their end of session module grades.

Since there was an incentive attached to this study it is important to note that two versions of the participants' information sheet (PIS) and the informed consent form were utilised. The reason for this was that some of the participants were first year students that participated in this study as part of their PS0711a module requirements. As these students already gained a course credit after taking part they were not included in the draw for the additional incentive. As such, their PIS and consent form did not contain information about the incentive or the option to be entered into the draw After completion of the booklets participants handed them back to the researcher.

The primary purpose of this study was to ascertain the relationship between future-orientation, personality, academic goal attainment, and well-being. Since goal attainment is of particular importance, participants were requested to provide specific performance goals (see Appendix F). As such, participants indicated specific modules and the associated grades they wished to achieve during the academic year. However, in order to measure goal attainment it was important to determine if participants actually achieved the results that they set out to achieve. For this to be

done the actual module grades were required and as such access to participant's student records were needed. Possible ethical problems developed due to the fact that the researcher involved in the project did not have direct access to student records. It was also recognised that providing a PhD student access to student records might be an ethical dilemma. As such a process to ensure anonymity and confidentiality was devised.

Due to the longitudinal nature of this study, participants were asked to divulge identification details such as their name and student number. This information was used by the University Registry to access student academic records. Once questionnaires were handed back to the researcher Unique Identification Numbers (UIN) were allocated to all the booklets and the consent form containing the participant's personal information was removed. The consent forms were kept in a secure and locked filing cabinet. Once recruitment was completed the researcher handed the identifying information to Registry where university staff accessed the student's academic records. After the researcher received the grades from registry for every participant all identifying details were removed from the dataset. This ensured that the researcher had no way to link any results back to specific students.

Incentive to Participate

On the consent form the participants were presented with the option to be entered into a draw for one of three shopping vouchers. The UIN of every participant that selects this option was entered into this random draw. Participants were informed that the vouchers could be for any high street retailer. After the data collection was completed and academic records were accessed the researcher randomly selected three participants to receive one voucher each. The participant

that was selected first received a £25 voucher, the second received a £20 voucher, and the third a £15 voucher. Each participant was contacted (using their student e-mails) and the vouchers were delivered to them.

4.2.6. Measures

Numerous questionnaires were completed in this study in order to measure the various variables in question and were presented to participants in the form of a pen and paper questionnaire. Although all are required to answer the stated research questions, shortened versions of the questionnaires were chosen to minimise the amount of time and effort required to complete the questionnaire booklet. Scoring of each measure was done according to instructions by the researchers who developed each measure. The following will provide a detailed description of each measure utilised during this study.

Demographic Information

The participants' age and gender was requested. Participants were also requested to provide information about their native language and country of origin (see Appendix F).

Self-Set Academic Goals

Two items assessed the academic goals participants set for themselves (see Appendix F). An open-ended question asked participant to indicate their academic goals. The second item was more specific and requested participants to nominate modules that they were attending, as well as the marks they wished to attain for

each module. In order to help students indicate their marks an example of possible marks were provided.

Personal Growth Initiative Scale-ll (PGIS-ll)

Although, Personal Growth Initiative was first measured with a 9-item, single-factor measure called the Personal Growth Initiative Scale (PGIS; Robitschek, 1998, 1999), a revised measures was developed recently. The Personal Growth Initiative Scale – II (PGIS-II; Robitschek et al., 2012) is a new multidimensional measure of the initiative individuals take to increase their personal growth. The PGIS-II (see Appendix F) is a 16-item measure with four subscales: Planfulness, Readiness for Change, Using Resources, and Intentional Behavior. Response options range from 0 = Disagree Strongly to 5 = Agree Strongly. Subscale scores is the mean response value for items on a specific subscale. The total scale score is calculated by summarising the subscale scores and then dividing them by 4. Previous research (Robitschek, Ashton, Spering, Murray, Shotts, & Martinez, 2009) reported test–retest reliability ranging from .62 - .77 over a 6 week period and adequate reliability evidenced with internal consistency indicators of 0.90 and above.

Trait Hope Scale

The Trait Hope Scale (Snyder et al., 1991) comprises of four distracter items, four pathways items, and four agency items. Since the Hope scale (see Appendix F) measures Hope as a trait, individuals are asked to imagine how they react and feel in various situations over a period of time. The overall Hope factor consists of two separate, but related factors e.g. Agency and Pathways (*r* ranging from .38 - .69, with a modal *r* of .5 across various samples). The Agency and the Pathway subscale

scores are derived by adding all the items in each subscale, with a total Hope Scale score derived by combining the Agency and Pathway subscales. Response options range from 1 = Definitely False to 8 = Definitely True. Reliability was established at both an internal and temporal level (Snyder, 2002). Internal reliability was confirmed for the overall scale (alphas ranging between .74 - .88), the agency subscale (alphas ranging between .70 - .84), and the pathways subscale (alphas ranging between .63 - .86). Temporal reliability was established with tests-retest results higher than .85 for a three week period and higher than .82 for a ten week period.

Achievement Goal Orientation

The 12-item Achievement Goal Questionnaire (Elliot & McGregor, 2001) was used to assess goal orientation. This questionnaire consists of three items for each of the four goal orientation constructs: (a) Mastery-Approach, (b) Mastery-Avoidance, (c) Performance-Approach, and (d) Performance-Avoidance (see Appendix F). The measure has a response range of 1 = Strongly Disagree to 5 = Strongly Agree. Each sub-scale can have a possible high score of 15 and a low score of 3, with a higher score indicating a tendency to lean towards a particular orientation for achievement. Elliot and McGregor (2001) reported adequate internal consistency estimates for each scale. Coefficient alpha was reported as .79 for mastery approach, .84 for mastery-avoidance, .89 for performance-approach, and .72 for performance-avoid.

Personality Questionnaire

The Five-Factor model of personality was assessed utilising the 50-item International Personality Item Pool (IPIP; see Appendix F) that measures Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness to

Experience (Goldberg et al., 2006). These five subscales each comprise 10 items to measure the five main personality domains. Items are scored on 5-point likert scale, anchors ranging from ‘1 = Very Inaccurate’ to ‘5 = Very Accurate’. Higher scores on each sub-scale provide an indication of individual’s tendency to display this particular trait in various situations. Negatively worded items were reversed scored as indicated by the scoring instructions. Internal reliability for the scales has been demonstrated to range from .77 to .86. Convergent validity for the scales has been demonstrated through correlations ranging from .85 to .92 with the NEO Personality Inventory (Goldberg et al., 2006).

Psychological Well-Being Scale

The Psychological Well-Being Scale (see Appendix F) was one of the measures used to assess participant well-being. Although the original version consists of six dimensions containing 20 items each (Ryff, 1989), this study utilised the shortened 9-items per scale version. The 6 subscale measuring the 6 dimensions related to well-being (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance) contains 9 items each and total subscale scores can range from 9 to 54. Participants rated each item on a 6-point Likert scale ranging from 1 = Strongly Disagree to 6 = Strongly Agree. Negatively worded items were reversed coded. In total the instrument contains 54 items and total scores can range from 54 to 324. While cut-off scores are not available, levels have been outlined in previous research. Scores were considered high if they fell in the top third, moderate if they fell in the middle third, and low if they fell in the bottom third of observed responses (Keyes et al., 2002). Correlations of each scale with its own 20-item parent scale range from 0.97 - 0.99.

Internal consistency (alpha) coefficients are 0.83, 0.86, 0.85, 0.88, 0.88, and 0.91 for each dimension respectively (Ryff, 1989).

Satisfaction with Life Scale (SWLS)

The Satisfaction with Life Scale (Diener, Horwitz, & Emmons, 1985) was used to assess life satisfaction. The SWLS (see Appendix F) consist of 5-items that measure general perceptions of satisfaction with a response range of 1 = Strongly Disagree to 7 = Strongly Agree and total scores that can range between 5 and 35. The scale relates positively to measures of well-being and negatively to measures of distress. Convergent and discriminant validity was also established (Pavot & Diener, 1993). The SWLS demonstrated internal consistency (α = .84; Heisel & Flett, 2004), test-retest reliability ranging from a two month period (r= .82; Diener et al., 1985) to four years (r= .54; Pavot & Diener, 1993).

Scale of Positive and Negative Experience (SPANE)

The Scale of Positive and Negative Experience (Diener et al., 2009) was utilised to measure positive and negative emotions. Within this 12-item measure (see Appendix F), 6 evaluate positive feelings and 6 evaluate negative feelings. These 6-items associated with both positive and negative emotions are divided into 3 general items and 3 specific items. The SPANE items are answered on a scale that range from 1 (Very rarely or Never) to 5 (Very often or Always). The summarised positive emotions score (SPANE-P) and the negative emotions score (SPANE-N) can range from 6 to 30. The two scores can then be combined, to create an affect balance, by subtracting the negative score from the positive score, and the resulting SPANE-B scores can range from -24 to 24. The three subscales had high Cronbach's alpha

and temporal stability over one month: SPANE-P .87, .62; SPANE-N, .81, .63; and SPANE-B, .89, .68 (Diener et al., 2009).

Attainment Survey.

During the initial assessment participants were asked permission for their final module grades to be obtained from the Abertay University Registry. This was done with the purpose of determining if participants attained the academic goals that they set for themselves (see Appendix F).

4.2.7. Operational Definitions

The rationale for this section is to provide descriptions of the variables measured in the study, as well as an operational definition of each, and detail on how variables were coded. Hope, PGI, Personality, SWB, PWB, Psychological, Goal Orientation were all treated as continuous variables. Of the two demographic variables Gender was treated as categorical, while Age was analyzed as a continuous variable.

Age. Age as a continuous value, was measured with one item on the demographic questionnaire requesting participants to state their age (e.g. “Age ___.”)

Self-Set Exercise Goals. Self-Set Exercise Goals were operationalised by two items. The first item was an open-ended question that asked participant to indicate their academic goals in their own words (e.g. “I want to pass all my modules this semester”). Although participants were presented with space for three self-

generated goals they were verbally instructed to leave this question blank if they did not have any goals.

The second, but more specific, item requested participants to nominate modules that they were working on during the semester, as well as the marks they wished to attain for each module. Participant were also provided with Table 4.1, as an example of the grading structure utilised at Abertay University in order to make it easier for them to indicate the grades that they were aiming to achieve.

Table 4.1. *Grading structure utilised at Abertay University*

Categorical Grade		Continuous Grade
A	20	5
	19	4.7
	18	4.3
B	17	4
	16	3.7
	15	3.3
C	14	3
	13	2.7
	12	2.3
D	11	2
	10	1.7
	9	1.3
MF	8	1
	7	0.7
	6	0.3
F	0	0

Personal Growth Initiative Scale-II (PGIS-II). Personal Growth was operationalised using the PGIS-II (Robitschek et al., 2012) a new multidimensional measure of PGI. The PGIS-II is a 16-item measure with four subscales: Planfulness, Readiness for Change, Using Resources, and Intentional Behaviour. Although each of these sub-scales has their own scores that are utilised in this study they can also be combined into an overall PGI score.

Trait Hope Scale. Hope was operationalised using the Trait Hope Scale (Snyder et al., 1991) that provided scores for two sub-scales (pathways and agency), that could be combined into a total hope score. In this study the sub-scale scores as well as total scores were utilised.

Achievement Goal Orientation. This questionnaire consisted of three items for each of the four goal orientation constructs: (a) Mastery-Approach (e.g., “I want to learn as much as possible from this class”), (b) Mastery-Avoidance (e.g., “I worry that I may not learn all that I possibly could in this class”), (c) Performance-Approach (e.g., “It is important for me to do better than the other students”), and (d) Performance-Avoidance (“I just want to avoid doing poorly in this class”).

International Personality Item Pool (IPIP). Personality was operationalised as a continuous variable using the IPIP (Goldberg et al., 2006). Extraversion, Neuroticism, Conscientiousness, Openness, and Agreeableness are the five personality dimensions measured using items from the IPIP.

Well-Being Questionnaire

As mentioned and implemented in the previous study presented in Chapter 3, well-being was measured in this study using multiple measures in order to gain a comprehensive overview of individual well-being. This decision was based on a recommendation by Seligman (Forgeard, Jayawickreme, Kern & Seligman, 2011) who recently proposed that well-being should not be measured by an overall composite well-being index, but rather by a variety of measures and indicators. Thus, three different scales will be implemented to gain an understanding of participants' sense of well-being. These scales included Ryff's Psychological Well-Being Scale (PWBS), the Satisfaction with Life Scale (SWLS), and the Scale of Positive and Negative Experience (SPANE). Although all of these measures represent different aspect of well-being, they will not be presented as separate scales in this study. All three questionnaires will be incorporated into one well-being scale (see Appendix F). Subsequently, a description of each scale is provided.

Hedonic Well-Being. Subjective well-being was operationalised using two scales the Satisfaction with Life Scale (SWLS; Diener, Horwitz, & Emmons, 1985) and the Scale of Positive and Negative Experience (SPANE; Diener et al., 2009).

Eudaimonic Well-Being. Psychological well-being was operationalised using Ryff's (1989) Psychological Well-Being Scale (PWBS).

Goal attainment. Goal attainment was operationalised by a categorical variable with "Yes" and "No" being the categories. The grades associated with the academic modules nominated by participants during the initial assessment were

compared with the final module grades. In order to gain an understanding of the grade scale utilised by Abertay University refer to Table 4.1. If a participant's goal was to attain an overall grade of B15 (e.g. 3.3) and their final grade fell above or within the three point rage (e.g. 3.4, 3.3, 3.2) associated with that score they were said to have attained their goal. However, if they scored in the lower three point range (e.g. 3.1, 3.0, 2.9) they were said to have failed in attainment. For instance if a participant scored 3.1 they would not fall within the first mentioned range and as such were said to have failed attainment. So any score of 3.2 and higher would have resulted in attainment.

4.2.8. Ethical Considerations

No known mental or physical discomfort was experienced by the participants. Participants were informed that they may withdraw from the study at any time, without explanation, should they feel uncomfortable. None of the participants were directly deceived except in terms of the full nature of the study. However, participants were fully debriefed and presented with the option to ask questions at the end of the study. The researcher also ensured that all the participants understood that only the researcher and supervisors would have access to their academic records, and that the data was anonymised. After the completion of the study debriefing forms (see Appendix F) were made available to all the participants. These contained specific information about the study.

If participants agreed to take part in the longitudinal phase of the study and indicated as much on the informed consent form (see Appendix F), they were asked to divulge personal details such as their name and student numbers. The process of dealing with and accessing student academic records were as follows.

- Upon receiving the questionnaire form the participant the researcher allocated a Unique Identification Number (UIN) to each participant. The UIN were used to identify a specific participant's results. In this way the participant's name/student number were not used in reference to his/her results.
- The consent form requesting permission to access student records and that also contain the personal details of the participant were separated from the data and stored in a locked filling cabinet until the end of the recruitment period.
- At that time the consent form containing the personal details were used by Registry at the university to gain access the participants' academic records.

By following the above procedure the researcher ensured that the data were anonymised and could not be linked back to any specific student.

4.3. DATA ANALYSIS

4.3.1. Missing data

The current sample does not contain any missing data and as such all of the participants that participated were included in the subsequent analysis.

4.3.2. Analytic Strategy

The dataset was subjected to preliminary analysis in order to establish normality, collinearity, as well as any outliers within the data. The internal consistency of all the psychological measures used will also be discussed briefly. Descriptive statistics that include the means, standard deviations, and inter-quartile ranges will be provided for all of the demographic and psychological variables. The

subsequent inferential analysis will firstly examine the relationship between all of the continuous variables measured utilising a Pearson's correlation.

An Exploratory Factor Analysis was conducted to explore the underlying shared structure between the Hope and PGI sub-scales. In this study the aim was not to conduct an item-level analysis of Hope and PGI, but instead to determine if the sub-scales that constitute Hope and PGI measure unique, independent variance. Utilising the sub-scales, instead of the item, in an Exploratory Factor Analysis is in concordance with previous research (see Keyes et al., 2002, Linley et al., 2009). After examining the uniqueness of Hope and PGI, a Hierarchical Regression Analysis was utilised to determine the extent to which both future-oriented constructs are able to predict unique variance for both PWB and SWB. A similar strategy was followed in order to investigate the relationships between the future-oriented constructs and the Big-Five Personality traits. An Exploratory Factor Analysis was used to determine the underlying factor structure between Hope, PGI, and the Big-Five Personality traits. To determine if Hope and PGI are able to predict unique variance in outcome variables, beyond the variance contributed by the personality traits, two Hierarchical Regression Analyses were conducted. The first regression analysis attempted to determine if Hope and PGI contributed any variance to the prediction of PWB, beyond the contribution already made by the Big-Five traits, followed by a second regression analysis where SWB was the outcome variable.

One of the main objectives in this study was to determine if individuals who set quantitative goals, such as specific grades, were better able to attain them. As such the participants were requested to indicate specific quantifiable academic goals they which to achieve by the end of the academic year. In order to determine the relationship between an individual's future-oriented mind-set, their personality traits,

their goal motivation, and the grades they expect to achieve Pearson's Correlation Analyses were conducted. These were followed by two Hierarchical Regression Analyses, the first exploring Hope, PGI, and Goal Motivation's ability to predict the Expected Grades. The second regression analysis builds upon the first by adding the Big-Five personality traits into the model. As in previous analyses the aim of adding the personality traits into the model was an attempt to determine if Hope and PGI can predict any additional variance in the Expected Grades beyond the variance already predicted by the Big-Five.

With the Expected Grades predicted by the participants, the final aim of this study was to determine if these goals were in fact achieved by the participants. A Pearson's Correlational Analysis will be used to determine if there were any significant relationships between Future-Orientation, Goal Motivation, Personality Traits, and Goal Attainment. This will be followed by a Binary Logistic Regression Analysis, which will provide an indication of which of the continuous predictors (Hope, PGI, Goal Motivation, and Personality) are significantly able to predict the categorical outcome, Goal Attainment.

4.4. RESULTS

Statistical analyses were performed utilising SPSS 21.0, an analysis package designed for the analysis of data within the social sciences.

4.4.1. Preliminary Analyses

Preliminary analyses allow for the exploration of the nature of variables and identification of errors within the data. Assessing normality within the data, outlier identification, examining collinearity between variables, and testing the internal

consistency of all scales will form part of this preliminary analysis. Tables 7 - 10 (see Appendix B) provide all the preliminary findings.

Normality

When making judgements about the normality of the dependant variables in a dataset, Field (2013) recommends that the statistical output should be considered, however a visual inspection should also be conducted. Generally, skewness and kurtosis are some of the statistical outputs used to determine normality. It should however be noted that small standard errors can produce significant skewness and kurtosis results, and as such these results are not considered appropriate for large samples (N>100). Table 10 (Appendix B) presents all the skewness and kurtosis scores for all the measures, however the dependent measures are of concern when considering normality. In the current study, the normality of PWB and SWB are important. Considering the skewness, kurtosis, and the visual inspection of the data it has been determined that the dependent variables are normally distributed.

The normality requirements for each of the inferential test utilised in this study will also be considered. In the case of an Exploratory Factor Analysis the dependent and independent variables are not separately indentified and as such the relationship between variables is examined without specifying the influence of specific variables on others. Normality is thus not a requirement when considering the underlining relationship between variables (Tabachnick & Fidell, 2001). The Hierarchical Regression Analysis assumption of normality and homogeneity of variance does not relate to the dependant variable, instead it is assumed that the random error in the relationship between the independent and dependent variable is normally distributed (Statistics Solutions, 2013). The residuals for each of the regression models will thus

be examined for normality. The normality assumption is not applicable to the use of the Binary Logistics Analysis.

Outliers

The Outlier Labelling Rule was used to determine if any of the data point was an outlier. Although Tukey (1977) first introduced the boxplot for the visual identification of outliers, it was later found not to be as effective (Hoaglin, Iglewicz, & Tukey, 1986). With the use of simulations Hoaglin, Iglewicz, and Tukey (1986) changed the boxplot labelling rule to a formula outlier identification method. These simulations also determined that instead of using a *g* of 1.5, a *g* of 2.2 was more appropriate for samples between 20 and 300.

Using the formula presented below with a *g* of 2.2, the upper and lower cut-off points are determined. Values that fall outside of these bounds can be labelled outliers and dealt with accordingly. Utilising this procedure it was determined that none of the data points in the dataset were outliers. The lower and uppers cut-off point, as well as the lowest and highest values in the dataset can be seen in Table 7 (Appendix B).

Equation 4.1. *Equations for determining the upper and lower cut-off points*

Upper = Q3 + [2.2 * (Q3 - Q1)]

Lower = Q1 – [2.2 * (Q3 - Q1)]

Collinearity

In order to determine if collinearity existed between the independent variables in this study the Tolerance and Variance Inflation Factor (VIF) for each variable was

considered. Tolerance refers to the percentage of variance in the independent variable that is not accounted for by the other independent variables. Tolerance can thus be viewed as a multiple regression analysis where the independent variable is regressed upon the other independent variables. When the R^2 value is subtracted from 1, the resulting variance not accounted for is considered tolerance. As such, tolerance values of .10 or less can be considered as problematic. The degree to which the standard error is inflated by levels of collinearity constitutes the VIF, with values 10 or greater being considered as indicators of collinearity (Belsey, Kuh, & Welsch, 2004; Pedhazur, 1997). When considering the tolerance and VIF results for the current study (see Table 8 in Appendix B) the conclusion can be reached that the levels of collinearity between the independent variables were not problematic.

Internal Consistency of Measures

The internal consistency for each of the measures utilised in this study can be viewed in Table 9 (see Appendix B). With few exceptions, the measures consistently demonstrated alpha internal consistency with alpha's ranging between .61 and .94. See Table 9 for all the internal consistency reliability scores for each measure and corresponding subscales.

4.4.2. Descriptive Statistics: Characteristics of Respondents

Descriptive statistics for all of the variables of interest are presented in Table 10 (see Appendix B). Descriptive statistics include the means, standard deviation, 95% confidence intervals (CI), minimum and maximum scores. Demographic variables in relation to their descriptive statistics will be discussed first and these

include Age, Expected Grade, and Final Grade. This will be followed by a discussion of descriptive statistics related to the psychological measures.

Demographic Variables. The participants had a diverse age range with a mean of 19.8 years (Lower CI = 19.19, Upper CI = 20.41), the youngest participant was 17 and the oldest was 40 years old. Considering that 5 (A20) is the highest grade and 1.3 (D9) the lowest passing grade that participants could have expected to achieve, when questioned about their Expected Grades participants indicated an average of 3.56 (B16; Lower CI = 3.48, Upper CI = 3.64) with the lowest grade expected being 2.58 (C13) and the highest being 4.53 (A19). On average participants' Final Grade was 3.08 (C14; Lower CI = 2.95, Upper CI = 3.22) with the lowest grade being .65 (MF7) and the highest being 4.67 (A19). The sample as a whole expected to achieve higher grades than they actually did. This discrepancy is especially distinguishable in the lower grade categories, where participants expected their scores to be much higher than they actually were. As can be seen in Table 4.2 none of the participants expected to fail their modules or score D's. The majority of the participants both males and females expected to score B's, when in actual fact the amount of C's and D's scored were much higher. Overall, only about 30% of the males and females attained their goals, whereas 70% of males and females did not.

Table 4.2. *Expected and Finale Grades according to Gender*

Gender	Grades	A	B	C	D	MF	Goal Attainment	
		20, 19, 18	17, 16, 15	14, 13, 12	11, 10, 9	8, 7, 6	Yes	No
Male	Expected Grades	8%	64%	28%	0%	0%	32%	68%
	Achieved Grades	8%	40%	36%	12%	4%		
Female	Expected Grades	13%	75%	12%	0%	0%	33%	67%
	Achieved Grades	8%	41%	44%	7%	0%		

Notes: 25 Males, 92 Females

Psychological variables. The psychological measures utilised in this study presented us with continuous data for the following: Hope, PGI, Motivation Orientation, PWB, SWB, and the Big-Five Personality Traits. All of these measures, with the exception of the Achievement Goal Questionnaire and the IPIP Big-Five measure, contain sub-scales that can be used independently or summed up to comprise a total scale score.

The Hope of participants was measured utilising the Agency and Pathways sub-scales that, when combined, provides an overall mean Hope score that can range anywhere between 8 and 64. In this study participants had a mean Hope score of 47.96 (SD = 6.12, Lower CI = 46.84, Upper CI = 49.08), a lowest score of 27 and highest score of 60. The four PGI sub-scales, Readiness for Change, Planfulness, Using Resources, and Intentional Behaviour combine to provide a mean

PGI score that ranges between 0 and 5. In the present study participants had a mean PGI score of 3.40 (SD = .63, Lower CI = 3.29, Upper CI = 3.52), with a minimum score of 1.40 and 4.60 being the highest score. Based on these results it can be concluded that individuals had fairly high Hope levels, but average PGI levels.

The sample's motivational orientation was assessed using four sub-scales: Mastery-Approach, Mastery-Avoidance, Performance-Approach, and Performance-Avoidance. On each of these scales the lowest score participants could achieve was 1 and the highest 5. Participants tended to lean more towards a mastery-approach (Mean = 4.12, SD = .61, Lower CI = 4.01, Upper CI = 4.23) in their goal motivation and the least toward a performance-approach (Mean =3.64, SD = .83, Lower CI = 3.50, Upper CI = 3.80). That means that the students tended to be motivated by the desire to master the course content and as a result enhancing their own competence. The students in this sample also seem to be least motivated by the desire to outperform their peers.

In order to gain a comprehensive view of participant's well-being both PWB and SWB measures were utilised in this study. The PWB of participants was determined using the mean of six subscales (Autonomy, Personal Growth, Purpose in Life, Environmental Mastery, Positive Relations with Others, Self-Acceptance), while the SWB was determined by means of combing the Satisfaction with Life and Affect Balance scales. Participants in this study had a mean PWB level of 4.37 (SD = .59, Lower CI = 4.26, Upper CI = 4.74) with a minimum of 2.52 and maximum of 5.63. The SWB results of the participants indicate a mean of 31.16 (SD = 13.17, Lower CI = 28.75, Upper CI = 33.57) with the lowest level being -7 and the highest 54.

Similarly to the motivation orientation questionnaire, the measure used for determining the personality traits cannot be combined into a accumulative total score, instead it provides five various sub-scales constituting the five personality traits: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Intellect/ Openness. Overall, participants scored highest on the Agreeableness (Mean = 37.50, SD = 5.71, Lower CI = 36.45, Upper CI = 38.54) and Openness traits (Mean = 36.14, SD = 5.45, Lower CI = 35.14, Upper CI = 37.14), and lowest on the Neuroticism trait (Mean = 28.56, SD = 8.83, Lower CI = 26.94, Upper CI =30.17). When considering all the above means with their corresponding confidence intervals it can be concluded that none of the confidence intervals were too wide. It is thus safe to assume that these descriptive results can be generalised to the wider population.

4.4.3. Inferential Statistics

In this section the inferential results examining the aims of the study will be presented and explained. The focus will firstly be on examining the relationships between Hope and PGI, as well as their unique ability to predict Well-Being.

4.4.3.1. Statistical Power

The estimated sample for this study was 110 with a final sample recruited of 117, which should provide adequate statistical power for all of the analysis in this study. Post-hoc power analysis indicated that the correlation analysis throughout this study had sufficient statistical power. For example, the correlation presented in Table 4.7 containing 9 variables, with an alpha level of .001, an effect size of .50 (large effect, Cohen 1992, 1988) had a statistical power of .99 well above the appropriated

level of .80 (Cohen, 1988). The regression analyses presented in this study also showed adequate statistical power. For instance, the regression model presented in Table 4.11 had an alpha level of .05, an effect size of 1.78 and a power of 1.00 also well above .80.

4.4.3.2. Relationships between Hope, PGI, Goal Motivation, and Well-Being

For all the Pearson's Correlation Analyses in this study Bonferroni corrections were utilised as a conservative way to counteract the problem of familywise error or multiple comparisons. Familywise error occurs when various tests are conducted on a dataset at one time, because it increases the chance of the null hypothesis being rejected when it is in fact true (i.e. Type I error). Thus, the larger the number of tests being conducted the higher the chance of the null hypothesis being rejected resulting in the mistake of thinking that there is an effect when there is not (Abdi, 2007). So in order to correct for this error the alpha level is made more stringent. The downside in utilising this method is that it may make it more difficult to detect a real effect. However, any effects that are found can be reported with greater confidence. During all the correlational analyses in this chapter the results will be reported considering three levels of significance. These include the 5% ($p<0.05$) and 1% ($p<0.01$) levels, as well as the Bonferroni corrected significance levels associated with each individual correlational analysis.

Correlation analyses, reported in Table 4.3 were conducted to analyse the relationships between Hope, PGI, and Well-Being. As expected, Hope and PGI shared a moderate significant relationship. Although both Hope and PGI shared positive, highly significant relationships with both PWB and SWB, the strength of these relationships differed. Individuals with high Hope tend to have higher PWB and

SWB, than those with high PGI. Likewise, PWB and SWB is highly correlated with each other, however not enough lead to collinearity concerns.

Considering the moderate relationship between Hope and PGI and the fact that Hope seems to have stronger relationships with PWB and SWB, the question becomes which of these two future-orientated measures is the better predictor of Well-Being. Since the correlational results cannot be used to make inferences about variance predictions, a Regression Analysis was utilised. Due to results reported in Chapter 3 where it was suggested that Hope and PGI factor onto the same component it is important to establish the underlying relationship between Hope and PGI. Since those results were based on an exercise sample it is imperative to establish if these results can be generalised to other samples. If the same results can be found in other samples it could lead to the conclusion that PGI does not make a unique contrition to the individuals' well-being. The next analysis attempts to answer this question.

Table 4.3. *Zero-order correlations between Hope, Personal Growth Initiative, Psychological and Subjective Well-Being.*

	1	**2**	**3**	**4**
1. Hope	1			
2. PGI	**.46*** **	1		
3. PWB	**.65*** **	**.44*** **	1	
4. SWB	**.40*** **	**.24** **	**.74*** **	1

Notes: N 117 *ρ < .05, **ρ < .01, Bonferroni Corrected: ***ρ < .001

Distinctiveness of Hope and PGI

In order to explore the underlying relationship between Hope and PGI the sub-scales related to both variables were subjected to an Exploratory Factor Analysis. Pathways and Agency were the two sub-scales related to Hope, while Readiness for Change, Planfulness, Using Resources, and Intentional Behaviour were PGI's sub-scales. The results indicate two future-oriented components that can possibly be extracted. The sampling adequacy measure indicated an overall KMO of .77, with KMO levels greater than .71 for all the sub-scales. As can be seen in Table 4.4., the Rotated Component Matrix provided indications of two underlying components related to future-orientation, both with Eigenvalues well above the expected Kaiser criterion of 1. The first component comprised the four PGI sub-scales and contributed a total variance of 51.2%. The second component comprised the two Hope sub-scales, Agency and Pathways, accounting for an additional 17.78% to the total variance. Considering these results, Hope and PGI seem to represent two distinct, but related future-oriented variables in the current sample, with PGI accounting for more of the total variance than Hope.

With the Factor Analysis indicating Hope and PGI as independent variables in relations to this sample, it is of interest to investigate to what extent both these variables were able to predict unique variance in outcome variables. More specifically, it is of interest to establish if Hope and PGI were able to account for unique variance in both SWB and PWB.

Table 4.4. *Factor loadings for the Hope and Personal Growth Initiative Sub-Scale*

	Component	
Hope & PGI Subscales	**1**	**2**
Pathways	.45	**.71**
Agency		**.91**
Readiness for Change	**.80**	
Planfulness	**.79**	
Using Resources	**.75**	
Intentional Behaviour	**.75**	.35

Notes: N = 117. Variance explained = 68.98%.

Hope and PGI Predicting Well-Being

As previously mentioned SWB and PWB are two distinct conceptualisations of well-being (Linley, Maltby, Wood, Osborne, & Hurling, 2009; Keyes, Shmotkin, & Ryff, 2002; Biaobin, Xue, & Lin, 2004) and are utilised in this study to provide a comprehensive indication of participant's well-being. An EFA was conducted on the six sub-scales related to PWB and the three sub-scales related to SWB. Two components, one related to SWB (consisting of the Positive Emotions, Negative Emotions, & SWL scales) and one related to PWB (consisting of the six PWB sub-scales) was extracted. Both components have Eigenvalues well above the expected Kaiser criterion of 1, and accounted for a total variance of 66%. Given these findings, both PWB and SWB will be considered as two separate but related indicators of well-being in this study. For the following Hierarchical Regression Analysis the aim was to determine Hope and PGI's unique predictive ability of PWB and SWB.

Given the Factor Analysis results indicated that Hope and PGI were two distinct future-oriented constructs, the aim of the Hierarchical Regression Analysis was to determine the degree to which PGI is able to predict well-being, in addition to the contribution made by Hope. The results indicated that Hope significantly predicts 42% of the variance associated with PWB, while PGI only contributes an additional 2%. When considering SWB (See Table 4.6) it was found that Hope is able to significantly predict 15% of the variance, while PGI does not make a significant contribution to the predict SWB.

Regression Analysis predicting PWB, where PGI was entered into the model first indicated that Hope (entered second into the model) tends to contribute more variance (25%, $p < .001$) than PGI (19% $p < .001$). The results found when predicting SWB were much the same with PGI only contributing 6% ($p < .01$) of the variance in SWB while Hope contributed an additional 10% ($p < .001$). However, when Hope is entered into the model the significance of the contribution PGI made during the initial step falls away ($p = .454$) and only Hope significantly ($p < .001$) contributes to the prediction of SWB.

It can thus be concluded that although Hope and PGI do appear to be related, yet independent constructs, it is Hope that is the more effective predictor of both PWB and SWB. Considering the latter and the consistent findings reported in Chapter 3, where PGI was shown to be the weaker predictor compared to Hope, a related research question is whether or not any variance associated with future-orientation is already accounted for by the Big-Five Personality traits or if constructs such as Hope and PGI can make a unique contribution to the prediction of well-being.

Table 4.5. *Summary of the hierarchical multiple regression analysis predicting PWB, with Hope and Personal Growth Initiative as predictors*

Variable	R^2	β	SE β	Beta
Equation 1				
Hope	.421****	.11	.01	**.65****
Equation 2				
Hope	.445***	.09	.01	**.57****
PGI		.28	.12	**.18***

Notes: N = 117. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.42****; Equation 2, ΔR^2 = **.44***.

Table 4.6. *Summary of the hierarchical multiple regression analysis predicting SWB, with Hope and Personal Growth Initiative as predictors*

Variable	R^2	β	SE β	Beta
Equation 1				
Hope	.157****	.07	.01	**.40****
Equation 2				
Hope	.161	.06	.02	**.36****
PGI		.12	.15	.07

Notes: N = 117. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.15****; Equation 2, ΔR^2 = .15.

4.4.3.3. Relationships between Hope, PGI, Personality, and Well-Being

From Table 4.7 it can be inferred that individuals who tend to be more Conscientiousness and Extravert have higher levels of Hope and PGI. Conversely, individuals who tend to exhibit higher levels of Neuroticism have less Hope and PGI.

PGI also shows a positive, moderate relationship with Agreeableness, however Hope does not. Conversely, Hope has a small, positive relationship with Openness, while PGI does not. Thus, individuals who are more Agreeable tend to have higher levels of PGI (but not Hope), while individuals who show a propensity for Openness have higher levels of Hope (but not PGI).

Individuals who are Extraverts, Agreeable, and Conscientious are likely to have higher PWB and SWB, although PWB's relationships with these traits are consistently stronger than that of SWB. Neuroticism has strong, negative relationships with both well-being indicators, so individuals with this trait will experience less PWB and SWB. Of interest is the lack of relationship between Openness and PWB and its significantly, negative relationship with SWB. From this it can be concluded that participants who score high on this trait have less SWB and do not experience significantly changes in Psychological Well-Being.

Based on the Correlation Analysis, PGI has an exclusive relationship with Agreeableness, while Hope similarly has a relationship with Openness. Thus, it stands to reason that these two personality traits already account for the future-oriented perspective captured in the Hope and PGI constructs.

Table 4.7. *Zero-order correlations for Future-Orientation, Well-Being, the Big-Five Personality Traits and the Expected Grade*

	1	2	3	4	5	6	7	8	9
1. Hope	1								
2. PGI	**.46*** **	1							
3. Extraversion	**.48*** **	.29**	1						
4. Agreeableness	.12	**.39*** **	.24**	1					
5. Conscientiousness	**.44*** **	**.42*** **	.17	.25**	1				
6. Neuroticism	**-.37*** **	**-.31*** **	**-.49*** **	**-.34*** **	**-.29*** **	1			
7. Intellect-Openness	.24**	.06	.08	.02	**-.10**	.07	1		
8. PWB	.65**	.44**	**.68*** **	**.41*** **	**.48*** **	**-.73*** **	.06	1	
9. SWB	**.40*** **	.24**	**.47*** **	**.33*** **	**.34*** **	**-.74*** **	-.20*	**.74*** **	1

Notes: N 117. *ρ < .05, **ρ < .01, Bonferroni Corrected: ***ρ < .001

Structure Underlying Hope, PGI, and Personality

An Exploratory Factor Analysis was conducted using the Big-Five personality traits, as well as Hope and PGI, to determine the relationship underlying these variables. In this analysis the KMO was .67 which is still above the adequate level of .5 (Field, 2013). The individual scale KMO's ranged from .52 - .76. Taking into consideration the output of the Rotated Component Matrix (see Table 4.8), Scree plot, and the Eigenvalues which was well above the expected Kaiser criterion of 1, two components emerged. The first component consisted of PGI, Extraversion, Agreeableness, Conscientiousness, and Neuroticism, and accounted for 38.71% of the total variance. The second component accounted for 16.41% of the variance and consisted of a single personality trait, Openness. The only scale in question is Hope. The scale loaded onto both components very evenly, with Hope loading onto component 1 that contains four of the Big-Five traits, but also onto the second component that contains Openness. A possible explanation for this result might be related to the two sub-scales that make-up Hope. Agency and Pathways might be the deciding factor in this ambiguous output, as both these sub-scales might be related to different Personality traits.

Table 4.8. *Factor loadings for the Hope, Personal Growth Initiative, and the Big-Five Personality Traits*

	Component	
	1	**2**
PGI	**.71**	
Hope	**.60**	.58
Extraversion	**.60**	
Agreeableness	**.60**	
Conscientiousness	**.67**	
Neuroticism	**-.72**	
Intellect/Openness		**.88**

Notes: N = 117. Variance explained = 55.12%.

Given the previously mentioned possibility, a second Exploratory Factor Analysis was conducted containing the Big-Five traits, but in this instance the Hope and PGI sub-scales were added to gain a better understanding of how these sub-scales relate to the five personality traits. The KMO indicated an overall sampling adequacy value of .78, with all individual scales KMO values above the .5 level. Considering the Rotated Component Matrix presented in Table 4.9., and the Eigenvalues which were well above the expected Kaiser criterion of 1, four components emerged. The first component that emerges supports results of the correlation analysis where it was found that Agreeableness and PGI are related to each other. This component, where all the PGI sub-scales factored onto the same component as Agreeableness, accounts for 36.42% of the variance. The second and the forth component provide us with a clear idea of how the two Hope sub-scales relate to Personality traits. The second component indicates that Agency relates to

the same underlying factor as the Conscientiousness Trait, and accounts for 13.50% of the overall variance. Openness and Pathways factor onto the same component accounting for 9.17% of the variance. This then provides a partial explanation for the correlation between Hope and Openness. Contrary to the previous factor analysis where it was found that Extraversion and Neuroticism factor onto the first component, the current output indicates that these two traits factor onto a separate component. Previous research (Caspi, Roberts, & Shiner, 2005) suggests that Extraversion and Neuroticism are two opposing emotionality traits, with Extraversion being related to positive affect and Neuroticism being related to negative emotions. In this analysis Extraversion factored onto this component positively, Neuroticism related negatively, however together these variables account for 11.09% of the overall variance.

In light of the above findings, it can be concluded that PGI and Agreeableness have the same underlying factor, while the two Hope sub-scales Agency and Pathways, respectively, have the same underlying factor as Conscientiousness and Openness. With this preliminary evidence that Personality traits share an underlying structure with specific future-oriented constructs, it needs to be investigated whether the future-oriented constructs are able to contribute variance to the prediction of outcome variables, independent of the contribution made by the Big-Five Personality traits.

Table 4.9. *Factor loadings for the Hope, Personal Growth Initiative, and the Big-Five Personality Traits*

	Component			
	1	**2**	**3**	**4**
Extraversion			**.80**	
Agreeableness	**.68**		.43	
Conscientiousness		**.78**		
Neuroticism			**-.81**	
Intellect/Openness				**.86**
Readiness for Change	**.82**			
Planfullness	**.61**	.56		
Using Resources	**.63**	.31		
Intentional Behaviour	**.64**	.47		
Agency		**.76**		
Pathways		.47	.41	**.60**

Notes: N = 117. Variance explained = 70.18%.

Do Hope and PGI Contribute to Well-Being Independently of Personality?

Previous findings in both Chapter 3 and the current study showed Hope, when compared with PGI, to be the stronger predictor of PWB and SWB. In the case of PWB, PGI did make a small contribution to the prediction in addition to Hope, however in the case of SWB, PGI did not. As such, in the subsequent analysis it will be of interest to see how these variables react when added into a regression model with the Big-Five traits.

From the Hierarchical Regression Analysis results presented in Table 4.10., it can be seen that three of the Big-Five Personality Traits make a significant contribution to the prediction of PWB. Extraversion and Conscientiousness contribute positively to the prediction, while Neuroticism negatively predicts PWB. Together these Personality traits contribute an impressive 75% of the variance in PWB.

Although PGI does not account for significant variance in PWB, when Hope is added to the model the PWB variance accounted for increases to almost 80%. Interestingly, when Hope is added to the model, Agreeableness also makes an active contribution. This might be due to a suppression effect, where one variable increases the predictive validity of another just by its inclusion (MacKinnon, Krull, & Lockwood, 2000). So if we were to exclude Hope from the model the direct effect between Agreeableness and PWB would be undermined, and as such Hope would not have the opportunity to enhance the predictive validity of Agreeableness. PGI's lack of contribution when added to the model might be due to the variance already accounted for by Agreeableness as well as PGI, and as such PGI becomes redundant in the model. With the results indicating that Hope makes an additional contribution to the prediction of PWB, it should be considered how this might relate to Conscientiousness and Openness. This is of interest because Factor Analysis results previously presented indicate both of the Hope constructs Agency and Pathways, to be respectively associated with Conscientiousness and Openness.

With only the Big-Five entered into the model, Openness did not contribute any significant variance to the prediction of PWB, while Conscientiousness did. In this instance it can be seen that when Conscientiousness increased by one standard deviation (SD= 7.04) PWB would increase by 1.22 (0.28 x 4.37). However, when

Hope is added, the standardised contribution made by Conscientiousness to PWB decreases to 0.79 (0.018 x 4.37), while for every one standard deviation (6.12) increase in Hope, PWB would increase by 1.78 (0.27 x 4.37). With Hope subsuming some of the variance accounted for by Conscientiousness, the conclusion that can be reached is that Hope does contribute to the prediction of PWB above that made by Conscientiousness. This conclusion can further be supported by the inability of Openness to contribute any variance beyond Hope's contribution. Overall, Hope does measure certain elements of future-orientation not contained or measured by the Big-Five traits.

The ability of Personality traits and future-orientation to contribute to the prediction of SWB was also determined. The Big-Five personality traits were added into the model first, and contributed 60% of the variance in SWB (see Table 4.11). As in the case of PWB the results indicated that Extraversion was positively related to SWB, while Neuroticism was negatively related to SWB. However, the result that stands out is the negative relationship between Openness and SWB. The addition of Hope and PGI to the model indicated that neither makes a significant overall contribution to the prediction of SWB. However, when considering the Beta coefficients several interesting findings should be mentioned. Hope does not make a significant, independent contribution to SWB, however when adding PGI into the model Hope becomes a significant contributor of variance. It seems that for this sample, PGI only makes a significant contribution to the prediction of SWB through Hope.

In summary, the above results indicated that combined, Hope and Personality traits contribute 80% to the overall variance in PWB. It was also concluded that Hope contributes to PWB beyond the contribution made by Conscientiousness or any of

the other Big-Five traits. It was also determine that the Big-Five account for 60% of the variance in SWB, however future-orientation does not significantly add any variance to the prediction of SWB.

Table 4.10. *Summary of the hierarchical multiple regression analysis predicting PWB, with Hope, Personal Growth Initiative, and Personality Traits as predictors*

Variable	**R^2**	**β**	**SE β**	**Beta**
Equation 1				
Extraversion	.763**	.031	.004	**.40****
Agreeableness		.010	.005	.09
Conscientiousness		.015	.004	**.28****
Neuroticism		-.026	.004	**-.43****
Intellect/ Openness		.009	.005	.09
Equation 2				
Extraversion	.801**	.024	.004	**.30****
Agreeableness		.013	.005	**.13****
Conscientiousness		.015	.004	**.18****
Neuroticism		-.026	.004	**-.40****
Intellect/ Openness		.002	.005	.02
Hope		.025	.006	**.26****
Equation 3				
Extraversion	.801	.024	.004	**.31****
Agreeableness		.014	.005	**.13****
Conscientiousness		.015	.004	**.18****

Neuroticism	-.026	.004	**-.39****
Intellect/ Openness	.002	.005	.02
Hope	.026	.006	**.27****
PGI	-.027	.050	-.03

Notes: N = 117. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.75****; Equation 2, ΔR^2 = **.79****; Equation 3, ΔR^2 = .80.

Table 4.11. *Summary of the hierarchical multiple regression analysis predicting SWB, with Hope, Personal Growth Initiative, and Personality Traits as predictors*

Variable	R^2	β	SE β	Beta
Equation 1				
Extraversion	.614**	.27	.12	**.15***
Agreeableness		.16	.15	.07
Conscientiousness		.21	.12	.11
Neuroticism		-.90	.11	**-.60****
Intellect/ Openness		-.39	.15	**-.16****
Equation 2				
Extraversion	.626	.17	.13	.10
Agreeableness		.20	.15	.09
Conscientiousness		.09	.13	.05
Neuroticism		-.87	.11	**-.58****
Intellect/ Openness		-.49	.15	**-.20****
Hope		.33	.17	.15
Equation 3				
Extraversion	.637	.18	.13	.10

Agreeableness	.29	.15	.13
Conscientiousness	.14	.13	.08
Neuroticism	-.87	.11	**-.59****
Intellect/ Openness	-.49	.15	**-.20****
Hope	.42	.17	**.19***
PGI	-2.71	1.50	-.13

Notes: N = 117. *$\rho < .05$, **$\rho < .01$

For Equation 1, ΔR^2 = **.60****; Equation 2, ΔR^2 = .61; Equation 3, ΔR^2 = .61.

In conclusion, it would seem that Agreeableness shares an underlying structure with PGI, while the Hope sub-scales Agency and Pathways respectively share an underlying structure with Conscientiousness and Openness. Although Personality contributes to the prediction of individual PWB and SWB, only Hope adds additional variance to PWB beyond the contribution made by the Big-Five Personality traits. Although the conclusion has been reached that Hope is the stronger future-oriented predictor of PWB and that PGI does not make a significant additional contribution, this finding cannot be generalised to other outcome variables. It may be that PGI might be the measure of choice in other settings where individuals' well-being is not the focus. The remaining analyses of this study will centre on participants' performance goals and the attainment of these goals. There will be a focus on how these future-oriented constructs, in particular PGI, reacts in a performance setting.

4.4.3.4. Do Hope, PGI, and Goal Motivation Contribute to Expected Grade?

As mentioned in the method section, in order to determine the relationship between future-oriented constructs and goal setting, participants were requested to indicate quantitative goals related to their academic achievement.

Results from the correlation analysis presented in Table 4.12 indicate that whereas Hope does not have a significant relationship with the predicted grades, PGI did show a small, but significant relationship with the Expected Grades. Thus, the higher the PGI levels the higher the grades will be that are expected by the students. As for the goal motivations, Mastery-Approach, Mastery-Avoidance, and Performance-Approach all had small, but significant relationships with the Expected Grades.

Table 4.12. *Zero-order correlations for Hope, Personal Growth Initiative, Goal Motivation, and Expected Grade*

	1	2	3	4	5	6	7
1. Hope	1						
2. PGI	**.46*** **	1					
3. Mastery-Approach	.15	**.28** **	1				
4. Mastery-Avoidance	.05	.10	**.32** **	1			
5. Performance-Approach	.06	.10	**.24** **	.13	1		
6. Performance-Avoidance	-.01	-.02	.17	.15	**.78*** **	1	
7. Expected Grade	.13	**.27*** **	**.26** **	**.22** *	**.21** *	.14	1

Notes: N 117. *ρ < .05, **ρ < .01, Bonferroni Corrections: ***ρ < .002

In order to investigate whether future-orientation and goal motivation have a predictive relationship with these academic goals a Hierarchical Regression Analysis

was performed. Based on the results presented above it was decided to exclude Hope and Performance-Avoidance Goal Motivation from the subsequent regression analysis, due to the lack of correlation between them and the Expected Grades. The results presented in Table 4.13, indicated that none of the goal motivations had the ability to significantly predict the grades expected by students. PGI did however contribute 7% of the variance in the Expected Grades. And based on the Beta coefficients it can be concluded that for every one standard deviation (SD = .63) increase in PGI there will be a 0.11 (0.27 x 0.42) increase in the grades expected by students.

By determining that only PGI, of the two future-oriented constructs, made a significant contribution to the prediction of the grades expected by students, is was of interest to see whether this finding will hold if we were to add the Big-Five personality traits into a model.

Table 4.13. *Summary of the hierarchical multiple regression analysis predicting Expected Grades, with Personal Growth Initiative and Goal Motivation as predictors*

Variable	R^2	β	SE β	Beta
Equation 1				
PGI	.075**	.183	.060	**.273****
Equation 2				
PGI	.150*	.141	.061	**.211***
Mastery–Approach		.083	.067	.119
Mastery–Avoidance		.071	.047	.139
Performance-Approach		.075	.046	.147

Notes: N = 117. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.07****; Equation 2, ΔR^2 = **.12***.

4.4.3.5. Do PGI Contribute to Expected Grades Independently of Personality Traits?

Based on previous Factor Analysis results the assumption can be made that Agreeableness and PGI share an underlying factor, the aim is thus to determine if PGI's predictive power indicated in the previous regression analysis will hold when Agreeableness is added into the same model as PGI or if the variance accounted for by PGI would be subsumed by Agreeableness. As can be seen from Table 4.14, besides PGI, only Openness significantly correlates with the Expected Grades. Extraversion, Conscientiousness, Agreeableness, and Neuroticism do not have a significant relationship with the Expected Grades. It would thus be expected that only PGI and Openness will significantly predict the grades expected by students.

Table 4.14. *Zero-order correlations for Personal Growth Initiative, Big-Five Personality Traits, and Expected Grade*

	1	2	3	4	5	6	7
1. PGI	1						
2. Extraversion	**.29*** **	1					
3. Agreeableness	**.39*** **	**.24** **	1				
4. Conscientiousness	**.42*** **	.17	**.25** **	1			
5. Neuroticism	**-.31*** **	**-.49*** **	**-.34*** **	**-.29*** **	1		
6. Intellect-Openness	.06	.08	.02	-.10	.07	1	
7. Expected Grade	**.27** **	.04	.12	.05	.07	**.34*** **	1

Notes: N 117. *ρ < .05, **ρ < .01, Bonferroni Corrections: ***ρ < .002

The results in Table 4.15 indicate that Personality Traits, specifically Openness, significantly account for 12% of the variance in the Expected Grades.

Additionally, PGI adds another 3% to the overall variance of 15%. Based on the Beta coefficients it can be said that for every one standard deviation (SD = 5.45) increase in Openness there will be a 0.14 (0.33 x 0.42) increase in the Expected Grades. For every 0.63 increase in PGI, there will be a 0.12 (0.30 x 0.42) increase. Although there is not much difference between Openness and PGI's standardised contributions to Expected Grades, it is of interest to note that while Agreeableness did not make a significant contribution to Expected Grades, PGI did.

Table 4.15. *Summary of the hierarchical multiple regression analysis predicting Expected Grades, with Personal Growth Initiative and Personality as predictors*

Variable	R^2	β	SE β	Beta
Equation 1				
Extraversion	.141**	.002	.006	.034
Agreeableness		.010	.007	.130
Conscientiousness		.005	.006	.077
Neuroticism		.006	.005	.125
Intellect/ Openness		.026	.007	**.330****
Equation 2				
Extraversion	.198**	.001	.006	-.005
Agreeableness		.004	.007	.057
Conscientiousness		-.001	.006	-.016
Neuroticism		.007	.005	.146
Intellect/ Openness		.024	.007	**.308****
PGI		.191	.068	**.286****

Notes: N = 117. *ρ < .05, **ρ < .01

For Equation 1, ΔR^2 = **.12****; Equation 2, ΔR^2 = **.15****.

The results thus far indicate that PGI and Openness are predictive of the grades participants expected to achieve. It is of further interest to determine if those individuals who are more future-oriented are more likely to achieve their goals than those who are not. Also, with results indicating that those individuals who are more prone to display Openness as a personality characteristic are bound to set higher academic goals for themselves it is of interest to determine if these individuals are more likely to achieve their goals as well. As such, the subsequent analysis will attempt to determine if PGI and the Big-Five are predictive of Goal Attainment.

4.4.4. Longitudinal Results

In the subsequent section one of the last of the main aims of this study will be investigated. It will be determined whether or not individuals' ability to attain quantitative goals is related to their future-orientation and personality traits.

4.4.4.1. Relationships between PGI, Traits, Expected Grades, Achieved Grades, and Goal Attainment

Utilising a Pearson's Correlational Analysis, an examination of the relationships between participant's achieved grades, and their PGI, Personality Traits, and Expected Grades were conducted. In contrast to previous correlational analyses presented in this chapter Bonferroni correction were not applied in this analysis. This is due to the large amount of variables that would have substantially reduced the ρ-value utilised. In contrast to results (see Table 4.17) where a relationship existed between the grades students expected to achieve and PGI, there was no relationship between PGI and the participants Achieved Grades. Of all the personality traits only individuals who have higher levels of Openness were more

likely to have a higher Achieved Grade. This is due to the small, positive relationship between participants' Achieved Grades and Openness. Not surprisingly participants' Expected Grades were moderately correlated with their Achieved Grades. With these significant relationships in mind, we were also interested to determine if a participant's future-orientation and personality traits were predictive of the attainment of the expected grades.

Future-Orientation, Goal Motivation, and Personality Traits Predicting Goal Attainment

Instead of utilising the achieved grades of participants in their academic modules, a categorical variable was created to indicate goal attainment. This was done because the aim of this study is not to determine if future-orientation and personality traits are predictive of academic ability, but rather if these constructs are predictive of goal attainment. As such, the difference between the expected and final grade was considered. If the final grade was equal to or exceeded the expected grade goal attainment were said to have taken place, however if the final grade fell below the predicted grade it was said that goal attainment did not take place.

In this study 32% of the participants attained the goal they set for themselves, while 68% did not (see Figure 4.1). From the Pearson's Correlational Analysis (see Table 4.17) it can be seen that participants Future-Orientation and Personality Traits are not correlated with the attainment of their academic goals. As would have been expected the findings indicate that higher expected grades result in greater goal attainment. Although the aim of this study is to determine if Goal Attainment is predicted by PGI and Personality Traits, the assumption can be made based on the lack of correlations between the variables that the predictors would have no

predictive ability. However, as a confirmation of this assumption a Binary Logistics Regression was conducted. The results presented in Table 4.16 confirmed that PGI and Personality Traits do not predict whether students in this sample would or would not attain their goals. Based on the results presented above the conclusion that can be reached is that although PGI and Openness are predictive of Expected Grades the attainment of goals is not dependent on individuals' future-orientation or their personality traits.

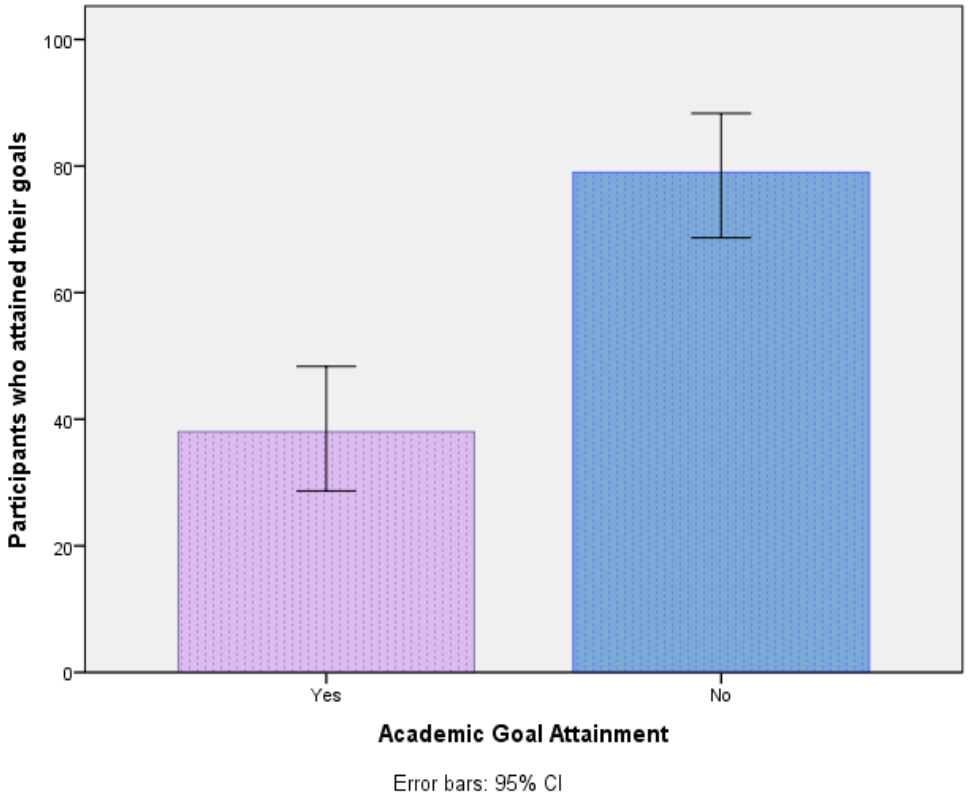

Figure 4.1. *Representation of participants Goal Attainment*

Table 4.16. *Summary of Logistic Regression Analysis for Future-Orientation, Goal Motivation, and Personality Traits Predicting Goal Attainment*

Predictor	β	SE β	e^B
Equation 1			
PGI	.199	.310	1.220
Equation 2			
PGI	.115	.376	1.122
Extraversion	.016	.031	1.016
Agreeableness	.023	.039	1.023
Conscientiousness	-.022	.032	.978
Neuroticism	-.008	.028	.992
Intellect/ Openness	.033	.038	1.034

Note: e^B = exponentiated B (odds ratio). * $\rho < .05$. ** $\rho < .01$.

Equation 1: $\chi^2 = .41$; Equation 2: $\chi^2 = 2.79$.

Table 4.17. *Zero-order correlations between Personal Growth Initiative, Personality Traits, Expected And Final Grade, and Goal Attainment*

	1	2	3	4	5	6	7	8	9
1. PGI	1								
2. Extraversion	**.29*** **	**1**							
3. Agreeableness	**.39*** **	**.24** **	1						
4. Conscientiousness	**.42*** **	.17	**.25** **	1					
5. Neuroticism	**-.31*** **	**-.49*** **	**-.34*** **	**-.29** **	**1**				
6. Intellect-Openness	.06	.08	.02	-.10	.07	1			
7. Expected Grade	**.27** **	.04	.12	.05	.07	**.34*** **	1		
8. Achieved Grade	.03	-.03	.01	.05	.09	**.22** *	**.41*** **	**1**	
9. Goal Attainment	.06	.09	.08	-.03	-.07	.09	**.19** *	**.58*** **	**1**

Notes: N 117. *ρ < .05, ** ρ < .01, *** ρ < .001.

4.5. DISCUSSION OF STUDY 2

The primary purpose of the present study was to improve our understanding of how human strengths and personality traits relate to each other in a performance setting. Specifically, this study aimed to determine if future-oriented constructs such as Hope and PGI independently predict well-being and goal attainment, while controlling for personality traits. The first aim of this study related to the relationship and independence of Hope and PGI in their prediction of Psychological and Subjective Well-Being. Besides the prediction of well-being it was also of interest to determine if Hope and PGI independently predicted expected academic grades and the attainment of these grades. Thirdly, the underlying relationships between future-oriented constructs and the Big-Five personality traits were also examined. Here the aim was to determine if the future-oriented constructs can account for additional variance in the prediction of well-being and the setting of academic goals that is not already accounted for by the Big-Five traits. Since the study was conducted in an academic setting where the focus is on performance, the extent to which achievement goal motivation are influenced by future-orientation and personality traits were also of concern.

As such, discussion in the current section will focus on the underlying relationship between personality traits and future-orientation, how these relate to well-being, goal setting and attainment. Included in these discussions are the contribution made by achievement goal motivation. However, the extent to which Hope and PGI are independent of each other in its prediction of well-being will be focused on first.

4.5.1. Discreteness of Hope and PGI

With all the theoretical and conceptual similarities between Hope and PGI (Shorey et al., 2007) the distinctiveness of these two future-oriented constructs are brought into question. In Chapter 3 it was determined that Hope and PGI seem to share an underlying relationship, the preliminary conclusion reached was that both seem to measure the same element related to future-orientation. The findings from the current study support this conclusion even though it drew on a different population and domain.

Based on correlational results we know that Hope has a moderate, positive relationship with PGI. However, the Exploratory Factor Analysis in this second study provided results that Hope and PGI might indeed be distinct constructs. The fact that both Hope and PGI subscales factor strongly onto two separate components of personality, indicate that they do not share an underlying structure, but do in fact measure separate elements related to future-orientation within this student sample. With the uniqueness of these constructs established within this study, the relative contribution made by both should also be noted as this might be the deciding factor when utilising either measure in a research or therapeutic context.

It has been argued recently (Robitschek et al., 2012; Weigold, Porfeli, & Weigold, 2013) that PGI presents individuals with a set of skills that are represented in the sub-scales of the PGI measure. These skills, illustrated in Figure 4.2, are utilised by individuals to improve their personal growth and as such their well-being (Weigold, Porfeli, & Weigold, 2013). Based on this argument individuals who experience high-PGI will evaluate their skills as substantial and will thus feel that they are in a position to increase their personal growth which, in turn will results in a greater sense of well-being. Although, used as an identifying characteristic that sets

PGI apart from other constructs it can be questioned because the same argument can also be used for the sub-scales that Hope is comprised of. As shown in Figure 4.2 Hope incorporates the development of pathways to attain certain desired outcomes, as well as remaining motivated in order to persist at the pathways decided upon. Pathways and Agency can thus also be defined as a set of skills that empowers individuals to attain desired outcomes and in turn increase well-being. So differentiating between these constructs becomes imperative, not just to establish the differences between the concepts but also to establish the instances where PGI would be the construct of choice instead of Hope and vice versa.

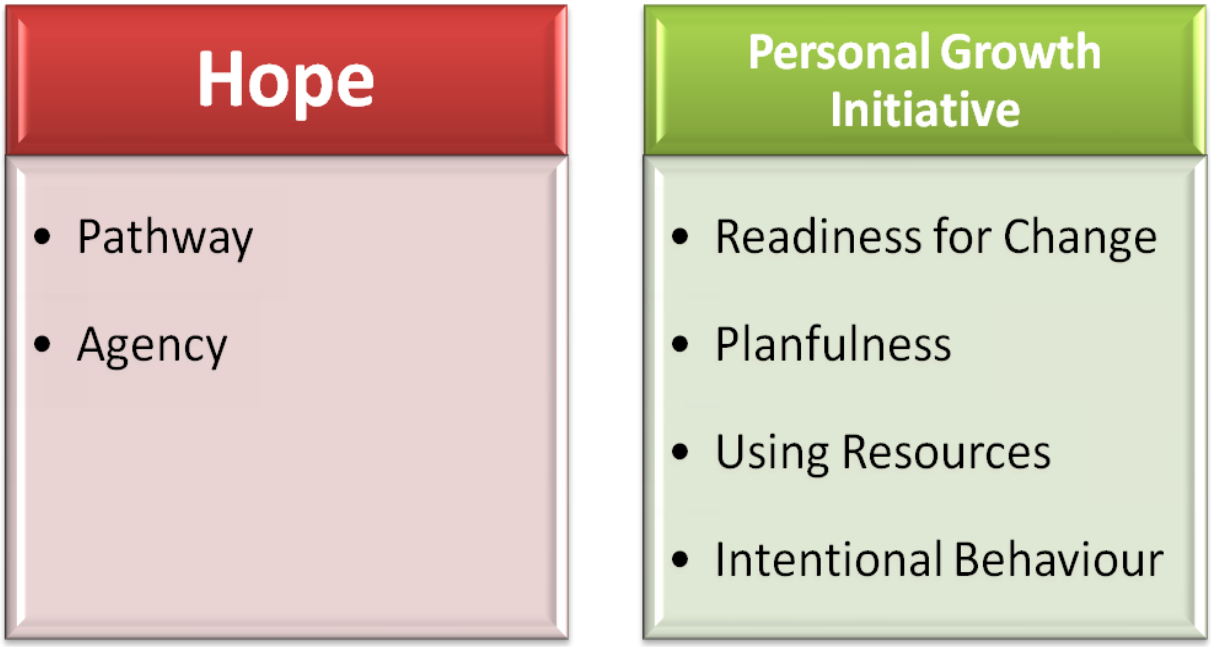

Figure 4.2. *Sub-scales associated with Hope and Personal Growth Initiative*

So to establish the individual contributions made by Hope and PGI to outcome variables, PWB and SWB were utilised in order to gain a comprehensive view of how future-orientation relates to individuals' sense of well-being. Individuals who experience greater levels of Hope will have moderately higher SWB (r = .4) and even

higher PWB (*r* = .7) levels. High-PGI individuals experience moderately high PWB (*r* = .4) and slight SWB (*r* = .2). From this it can be inferred that individuals who have higher Hope levels will not just have higher PWB than SWB, but will also have higher levels than those associated with PGI. These correlational results were supported by regression analysis results indicating Hope to be a more comprehensive construct and stronger predictor than PGI. Results from the regression analysis indicated Hope to be a strong predictor of PWB contributing 42% of the variance. Conversely, Hope makes a smaller contribution to the prediction of SWB, with only 16% of the variance predicted. Individuals with high-Hope levels will thus experience a greater sense of psychological well-being than subjective well-being. Furthermore, results indicate PGI to be a weak but, significant predictor of PWB, accounting for 3% of the variance, while it does not significantly predict SWB. These results support findings reported in Chapter 3, where it was also found that Hope makes a substantial contribution to the prediction of PWB and SWB, conversely PGI only made a small contribution to the prediction of PWB, and no contribution to the prediction of SWB.

It can be concluded that when attempts are made to determine if individuals' ability to plan for the future and purposefully pursue these plans the construct of choice should be Hope, specifically in reference to the effect this might have on perceptions of well-being. In light of this, two questions remain unanswered with regards to these two future-oriented constructs. First in establishing PGI as a weaker predictor of psychological and subjective well-being, can it be said that this construct, when compared to Hope, will also be the weaker predictor of other outcome variables? Second when compared to basic personality traits can Hope and PGI contribute additional variance in the explanation of outcome variables or do personality traits already account for what is defined as future-orientation? As it was

also the incentive of this study to answer these questions the subsequent discussion will focus on Hope and PGI's independence from the Big-Five personality traits, followed by a discussion on their ability to predict academic grades.

4.5.2. Independence of the Big Five

The incentive for investigating Hope and PGI's relationship with the Big Five model stems from the theory that these constructs contribute something to our understanding of human behaviour and motivation that cannot be accounted for by what is widely viewed as the basic traits that influence our decisions, motivations, and behaviour. Individuals who have higher levels of Hope and PGI are more conscientious and extravert, and less neurotic. From the correlational results in this study a pattern between Hope, PGI, and certain personality traits emerged. Whereas PGI has a positive moderate relationship with Agreeableness, Hope has a positive relationship with Openness. The exclusivity of these relationships can further be supported when consideration is given to the fact that the relationship between Hope and Agreeableness, as well as, PGI and Openness are absent. This could be suggestive of an exclusive relationship between these constructs that could possibly be indicative of underlying factor structures. This was support by findings from the EFA.

Although the initial EFA results were fairly ambiguous with Hope factoring onto both of the components that emerged, a subsequent EFA utilising the subscales of the Hope and PGI cleared up the ambiguity. The two Hope sub-scales (see Figure 4.2), Agency and Pathways, share respective underlying relationships with Conscientiousness and Openness. Given that conscientious individuals tend to be attentive, responsible, orderly, and persistent as well as the fact that some of the

lower-order traits associated with Conscientiousness is Attention and Achievement Motivation, it is not surprising that Agency would share an underlying relationship with this personality trait (Caspi, Roberts, & Shiner, 2005). Greater Hope levels enable individuals to develop various routes to their final goals, so that even in the instances where one route (Pathways) becomes unfeasible they have several others to choose from, thus ensuring a constant movement towards their goal. Individuals with greater levels of Openness are said to be imaginative, insightful, creative, and quick to learn (John & Srivastava, 1999). Engaging in pathway thinking can require individuals to use their imagination when encountering obstacles and it would also require them to be creative in the construction of ways to get around the obstacle. There are thus several similarities between Openness and Pathways that could account for the shared underlying relationship indicated by the EFA. With all of the PGI sub-scales (Readiness for Change, Planfullness, Using Resources, Intentional Behaviour) factoring most strongly onto the same factor as Agreeableness it would seem that all these scales share an underlying relationship. In the first instance this finding seems to be an anomaly that is difficult to reconcile with what we generally know to be Agreeableness. That is, highly agreeable individuals cultivate relationship with others, they are kind, considerate, polite, and willing to accommodate others feelings, while disagreeable individuals tend to be rude, cynical, aggressive, and manipulative (Graziano & Eisenberg, 1997). A possible explanation might be related to two of the three lower-order traits associated with Agreeableness; Pro-Social Behaviour and Cynicism/Alienation. Pro-Social Behaviour is related to helpful, kind, and considerate behaviour (Graziano & Eisenberg, 1997), in effect it is about social inclusion (Crick et al., 2001). Similarly, Cynicism/Alienation relates to the mistrust of others and feeling mistreated (Martin et al., 2000). The utilisation of the four PGI

processes can be described as essentially social processes. When considering Readiness for Change it can be described as a social process where an individual comes to the decision to change certain aspects based on self-realisation or social feedback from others (Robitschek et al., 2012). Individuals can notice that they are lacking in some way or another resulting in negative feelings or they can be provided with external negative feedback from friend, family, or colleagues, all resulting in a desire to change which in turn can be linked to intentional behaviour. Likewise Use of Resources and Planfullness involved in personal growth can be social in nature. That is, no matter what problem you might be facing, whether it is being unhappy with your current work situation, having marital problems, or mental and physical health problems, making changes in the majority of cases require some social interaction or engagement in interventions provided by others. It is thus possible that all these PGI processes have a social component to them and having higher PGI levels or Agreeableness might mean a greater willingness to engage socially.

Considering the underlying relationships indicated above, in addition to the significant amount of variance (70%) explained by the Big-Five in combination with Hope and PGI, it had to be determined if the latter two constructs could contribute additional variance in the explanation of outcomes. With Conscientiousness, Extraversion, and Neuroticism all contributing significant variance to PWB, it was only Hope (but not PGI) that had a twofold additional effect. First Hope did add additional variance to the prediction of PWB, showcasing that even with the variance accounted for by Conscientiousness and Openness Hope still adds further variance to the explanation of positive functioning. With Hope added to the prediction of PWB the contribution made by Conscientiousness decreased. Even considering this decrease, the variance added associated with Hope cannot simply be explained by

the variance subsumed from this loss. That is, Hope still makes an additional contribution three times the size of this loss. The second effect Hope had on the prediction of PWB was a suppression effect. That is to say, upon adding Hope into the prediction model it was found that Agreeableness which was not a significant predictor, suddenly added significant variance to PWB. According to MacKinnon, Krull, and Lockwood (2000) a suppressor is a variable, which upon inclusion in the regression equation, increases the predictive ability of another variable or multiple variables. Regardless of Hope's overall contribution to PWB, leaving this variable out of the prediction might lead the total effect between Agreeableness and PWB to appear not significant. It would seem that PGI does not make an additional, significant contribution to the prediction of PWB, when controlling for the effect of the Big-Five. It can thus be assumed that any variance PGI might have contributed to PWB has been subsumed into the Big-Five, possibly by Agreeableness. Overall the Big-Five traits and Hope accounted for a huge 80% of the variance in PWB.

As in the case of PWB, the results show Extraversion to positively predict SWB and Neuroticism to negatively predict SWB. This supports previous research (Steel, Schmidt, & Shultz, 2008) that indicated Extraversion to be related to happiness, while Neuroticism was related to negative emotions. A surprising finding was the negative, predictive relationship that exists between Openness and SWB. Previous results in this regard indicated ambiguous explanations. Some (Marrero-Quevedo & Carballeira-Abella, 2011) propose Openness to be weakly positively related to SWB, while others (Keyes, Shmotkin, & Ryff, 2002) report a negative predictive relationship. It would seem that the current results support the latter. It has been previously suggested by McCrae and Costa (1991) that Openness may increase individuals' potential for self-fulfilment, but a related cost to this trait is that it

might also be associated with negative feelings and evaluations of situations. The findings in this study and that of Keyes, Shmotkin, and Ryff (2002) would support the theory that Openness is negatively related to SWB. As so little is known about Openness and its properties, this negative relationship is worth exploring in future research.

Initial findings presented by Halama and Dedova (2005) indicate that after controlling for the Big-Five Hope does not add additional variance to the prediction of Satisfaction with Life (SWL). The current study builds on these findings by utilising a more comprehensive measure of subjective well-being. Whereas Halama and Dedova only used SWL as an indicator of SWB, we also incorporated the balance between positive and negative emotions. Although Hope and PGI do not make independent contributions to the variance in SWB, supporting Halama and Dedova's (2005) findings, there are several findings that warrant a discussion. The first of these is PGI's suppression effect on Hope. By including PGI into the model the direct relationship between Hope and SWB became significant. This would indicate that even without a direct effect on SWB leaving PGI out of the model would undermine the relationship between Hope and SWB (MacKinnon, Krull, & Lockwood, 2000). Similarly, Hope also seems to have an effect on the relationship between Extraversion and SWB. That is to say, upon adding Hope to the model the significant relationship that exists between Extraversion and SWB becomes not significant, Hope thus subsumed the variance accounted for by Extraversion. Although, indicative of how the underlying relationships that exist between not only PGI and Hope, as well as these two constructs and the Big-Five traits, the overall conclusion is that neither Hope nor PGI contributed any additional variance to the prediction of

SWB. Overall the Big-Five do however significantly predict 60% of the variance in SWB.

To summarise these findings it can be concluded that although the Big Five make the largest contribution to both Psychological Well-Being and Subjective Well-Being, Hope does add not only to the prediction of PWB but also to the Big-Five's relationship with PWB. Although previously reported findings in this chapter showed Hope's direct relationship with PWB and SWB, the subsequent findings would indicate Hope not just to have a direct relationship with PWB, but also a suppression effect. Upon considering the fact that Hope increases the predictive validity of Agreeableness it can be said that Hope's inclusion in the prediction of PWB is important. Similarly, previous findings also indicated Hope to have a direct effect on SWB, but when adding the Big-Five to the prediction this direct significant effect seems to disappear. Similarly, PGI does not contribute any additional significant variance in either SWB or PWB. Considering all of the findings thus far it would not be a stretch to argue PGI's redundancy in the prediction of both PWB and SWB. If this then is the argument being made it has to be questioned whether or not PGI can make a significant contribution in future research. Based on the findings from Chapter 3 and 4 a strong argument can be made for the redundancy of PGI in the prediction of well-being. However, it is acknowledged that caution needs to be taken in the interpretation of these results. We should not over-generalise these findings to other outcome variables or other domains. Given this, research situations where the utilisation of PGI, instead of Hope, would be more sensible still need to be considered and researched. This then bring us to the next research question this study aims to answer.

4.5.3. Feasibility of Attainment

The subsequent avenue of inquiry investigated whether future-orientation can make a significant contribution to the prediction of elements associated with its central theory, even after controlling for the stability of personality traits. Both the future-oriented theories suggest that individuals with greater levels of Hope and PGI are more effective at setting goals and achieving those goals, in effect they can recognize areas in their lives that are in need of change and make the changes deemed necessary (Snyder, 2002; Robitschek et al., 2012). In the current study the aim was to establish if the differences in students' Hope and PGI levels, after controlling for personality traits, would influence the overall academic grade they would wish to achieve and if attainment of those grades becomes a reality. It was also the aim of this study to establish if students with differing Hope and PGI levels would hold different achievement motivations that could possibly influence the setting and attainment of goals.

Hope in the current study did not make a contribution to the prediction of the expected grades the students aimed for. This contrasts with previous findings (Curry, Snyder, Cook, Ruby, & Rehm, 1997; Snyder et al., 2002) where it was suggested that Hope is a positive predictor of academic success. In contrast to Hope the findings show that those students who experience greater PGI have greater expectations about the grades they want to achieve, even after controlling for personality traits. Together PGI and personality traits can predict 25% of the variance in the grades expected by students. Interestingly though the only trait that significantly accounts for variance is Openness. In light of PGI's previous weak predictive performance of well-being, it is curious that of the two future-oriented constructs, PGI is the one that significantly predicts Expected Grades. It might be

that in an academic environment PGI is the construct that better enables students to plan the activities required to cope with their academic responsibilities. Although the current analysis does not allow us to make inferences about the sub-scales that constitute PGI, it is possible that this skill set (Robitschek et al., 2012; Weigold, Porfeli, Weigold, 2013) provides students with the confidence to set higher academic goals than their low PGI counterparts. These are questions best answered in future research. Based on meta-analysis results (Poropat, 2009) Conscientiousness is the trait we would have expected to correlate and predict grades. However, current results do not support this assertion. Instead it would seem that individuals with greater levels of Openness expect to achieve higher grades than their lower Openness counterparts. Although, Openness has been described as the most vague and controversial of traits researchers such as Caspi, Roberts, and Shiner (2005), McCrae and Costa, (1997b), and De Raad and Schouwenburg (1996) view Openness as the ideal trait for students to have. This is due to the resourcefulness, foresight, and intelligence associated with the trait (De Raad & Schouwenburg, 1996; DeYoung, Grazioplene, & Peterson, 2012).

It was further indicated that those students with higher PGI are more likely to have a Mastery-Approach motivation. That is, students with high PGI were motivated by a desire to master the content of their course and not outperforming their peers (Elliot & McGregor, 2001). Although three of the achievement goal motivations (Mastery-Approach, Mastery-Avoidance, & Performance-Approach) have an overall significant relationship and make a small contribution to the variance in the Expected Grades none of them are individually predictive of the grades. In this study the aim was never to examine the achieved grades of the students, instead the aim was to determine if attainment is likely. This was intentionally decided as the purpose was

not to examine future-orientation or the Big-Five's relationship with intelligence, which the final grade might be an indication of (Strenze, 2007). That being said, upon inclusion the achieved grades of the students did not correlate with PGI. Worth noting though is the fact that of all the five personality traits only Openness has a positive association with the final grades. As in the case of the expected grades, Openness is also positively associated with the achieved grades. Although students with greater PGI were more likely to have higher expectations about their grades, they were not statistically more likely to attain those grades. In fact, neither PGI nor the Big-Five traits were able to predict the attainment of students' academic goals. In light of the fact that only 32% of the participants attained the goals they set for themselves, this is not surprising.

Seeing as the central premise of constructs such as Hope and PGI are to establish change through goal setting, the above results are not promising. Although PGI was able to successfully predict the Expected Grades it did not have a significant effect on the attainment of the grades. It could be argued that the performance motivation with which high PGI individuals approach goals might have an effect on whether attainment takes place or not. This however was not the case since results in this study show none of the achievement goal motivations to be associated with the achieved grades or goal attainment. What we can infer from these results is that individuals with high PGI have high expectations, but they seem unable to turn these expectations into reality. So, somewhere between recognising what you would like to achieve academically and actually achieving it, there is a disconnect.

4.6. SUGGESTIONS FOR FUTURE RESEARCH

The design of the current study did not allow for the longitudinal evaluation of well-being. As such we were unable to provide an indication as to the impact goal attainment or non-attainment might have on the students. A longitudinal study would be ideal to investigate the way in which goal attainment or non-attainment might affect students' well-being. It should also be considered that academic goal attainment or lack thereof is only one of many possible domains that might influence overall well-being. The results from this study showed students proclivity for setting high goals and scoring lower than aimed for. Consequently, the majority of the students did not attain the goals they set for themselves. Future research might want to focus on designing an intervention that can be used by teachers, lecturers, and students to increase the likelihood of attainment. Such an intervention would ideally enable students to consider and evaluate their past performance, possible lessons that they leaned during the previous academic year, actions that might lead to better performance in the current academic year, as well as, taking into account present circumstances that might influence attainment. It would thus be important to establish if an inability to attain academic goals might influence the setting of future goals. Furthermore, future research might want to focus on the best ways of assisting students to set realistic goals, without undermining their ability to aim for high grades.

A larger sample might have provided the researcher with the option of utilising Confirmatory Factor Analyses during the analyses of the various scales. However, due to the limited sample size in the current study the utilisation of a CFA might have resulted in such an analysis to be underpowered.

Given that the current study indicates Agreeableness to be related to PGI, while also showing Conscientiousness and Openness to be respectively related to Agency and Pathways, it should be highlighted that this was determined through the use of sub-scale analysis and not item analysis. Future research should consider focusing on the lower order traits associated with these higher order traits. For example, the current study provides preliminary evidence that Hope might account for residual variance not accounted for by Conscientiousness and Openness. As such, future research might focus on which of the lower order traits associated with these two traits are correlated with Hope. This then leads to the bigger question of whether or not human strengths such as Hope and PGI contribute significant value, when compared to the Big-Five, in psychological research. That is, if we want to investigate individual differences effect on academic performance should we only use the Big-Five traits because they provide us with a universally excepted indication of individuals' personality differences or should we add other constructs to our analysis? And if we do add the additional constructs what value do they add?

4.7. CONCLUSIONS

The present study attempted to improve our understanding of how future-oriented constructs such as Hope and PGI relate to each other, as well as, their distinctiveness from the Big-Five traits in an academic setting. The results offer several important findings. First, this study provides more corroborating evidence that indicates Hope and PGI to be distinct, but related future-oriented constructs. What's more, when compared to PGI, Hope tends to emerge as the stronger predictor of both PWB and SWB, a finding consistent with results in Chapter 3. Similarly, upon comparison to the Big-Five traits it was found that Hope adds

additional variance to the prediction of PWB, but not SWB. Conversely, when controlling for the Big-Five PGI did not add any significant variance to the prediction of either PWB or SWB. With the current study supporting previous findings regarding the prediction of well-being, an additional aim of this study was to determine if PGI would emerge as the weaker predictor when predicting other outcome variables. This was found not to be the case. It would seem that student's PGI, instead of Hope, has the biggest influence on the prediction of the grades they wish to achieve, with high-PGI student setting higher grade goals than their lower PGI counterparts. In addition, with reference to the Big-Five traits, only students who have greater levels of Openness tend to set higher grade goals and were able to significantly predict the achieved grades. However, neither PGI nor any of the Big-Five were able to significantly predict the attainment of the initial grades. That is, students' PGI levels and their personality traits were not linked to the attained of their goals.

Chapter 5

GENERAL DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

'Just as our present is the result of our past,
so our future will be the result of our present.
Every minute of every day we are weaving
threads that will make the cloth of future.'
— Anne Spencer Parry

5.1. INTRODUCTION

On completion of the empirical research and interpretations of the data presented in the previous chapters, this chapter will focus on summarising the findings and reaching conclusions. There will firstly be a brief review of the two empirical studies conducted and presented in this thesis which will highlight the main findings. This will be followed by a discussion on possible implications. Limitations associated with both studies will be outlined, incorporating a discussion on other avenues of study for future research.

5.2. DISCUSSION OF MAIN FINDINGS

A consistent theme throughout this thesis was the empirical examination of Hope and PGI's uniqueness, a research area that has produced ambiguous findings in the past. In addition, a principal aim was to ascertain the extent to which future-oriented constructs could contribute to the prediction of goal setting, well-being, and goal attainment, in addition to the contribution made by personality traits. Since the two empirical studies were discussed individually in separate experimental chapters, the current chapter will provide a brief overview of each study's hypotheses and

findings. Consequently, the findings of each study will be presented and discussed in terms of their contribution to positive psychology.

5.2.1. Study 1: The Effect of Future-Oriented Concepts on Psychological Well-Being

The aim of Study 1 (Chapter 3), the first empirical study in this thesis, was to differentiate between the two future-oriented constructs, Hope and PGI. The objective was to determine how Hope and PGI relate to each other and the effect each had on Hedonic and Eudaimonic Well-Being, measured respectively as PWB and SWB (Keyes, Shmotkin, & Ryff, 2002). The first evidence that questioned the distinctiveness of Hope and PGI, as two constructs that measure two different elements of future-orientation, was provided by the factor analysis results. These findings indicated that Hope and PGI share an underlying future-oriented factor and were not separated into two distinct factors. Although Hope and PGI were both related to PWB and SWB, Hope emerged as the construct that had the strongest relationship with both well-being indicators. Hope predicted PWB fairly strongly but SWB to a lesser extent, PGI only predicted PWB but to a weaker extent when compared to Hope. Considering these results and taking into account previous research findings (Shorey et al., 2007) that showed PGI to have no direct influence on well-being indicators, the preliminary assumption was made that PGI does not make a significant contribution to that of Hope. This then also provides preliminary evidence to question Shorey et al.'s (2007) assertion that Hope and PGI are distinct constructs. Based on the results it is also evident that an individual with greater Hope expends more goal-related energy to increase their PWB. It is possible that these individuals place less value on their immediate emotional reactions to experiences

and their reflection on quality of life (Lucas, Diener, & Suh, 1996). Considering that PWB is the increase of an individual's flourishing (Waterman, 1993) and Hope is about the development of plans to better one's current circumstances it is not surprising that Hope is more predictive of PWB than SWB. It is possible that individuals with greater Hope levels place less value on their current emotional reactions and apply them more productively in the increase of behaviour aimed in the direction of attaining one's true potential (Waterman, 1984; 1993). With the results from Study 1 suggesting that Hope is the strongest contributing factor in the prediction of well-being and the initial assumption being made that PGI does not add much value in the prediction of well-being, it was questioned if these findings could be replicated and generalised to other populations. Study 2 thus extended the findings to a different domain.

A primary aim of Study 1 was to examine if individual's Hope and PGI are related to the goals they set and if the presence of these goals have an influence on well-being. The objective was to determine if the relationship between the two future-oriented constructs and PWB was mediated by Psychological, Social, and Physical Exercise Goals. The Hope theory (Snyder, 2002) proposes goals and the ability to articulate one's goals as its foundation. Similarly, there is a need for goal directed energy (agency) and the development of plans to meet the goals (pathways). The conscious and intentional process proposed by Robitschek et al. (2012) includes readiness for change, engagement in planfullness and intentional behaviour, while utilising resources. Although Robitschek and colleagues (2012) do not mention the pursuit of goals as a behavioural regulation strategy that individuals can follow, it has been questioned in this thesis how else Robitschek would perceive individuals to make these changes while utilising these proposed skills. Considering the important

role of goals in the Hope theory and the implied role in the PGI theory it would have been expected that goals would mediate the relationship between these constructs and PWB. The results indicated that the PWB of individuals with greater Hope are influenced by Psychological and Social Goals, but not Physical Goals. Psychological Goals increased the PWB of high-Hope individuals, but Social Goals decreased PWB. The results further indicated that the relationship between PGI and PWB was not mediated by any of the exercise goals. In this study, goals such as enjoyment and stress relieve are defined as Psychological Goals, while goals such as affiliation and social recognition are defined as Social Goals (Markland & Ingledew, 2007). Psychological Goals can be perceived as internal, while Social Goals can be perceived as external in their motivational control. According to goal setting and motivational theories internal goals are those that are pursued for the satisfaction associated with the activity itself (Vansteenkiste, Lens & Deci, 2006). External goals are the engagement in activities for the purpose of obtaining something separate from the activity. In this case individuals with high Hope who tend to pursue exercise goals for no other reason than the satisfaction (enjoyment or stress release) that exercise brings them tend to experience higher PWB. However, those high-Hope individuals who pursue exercise goals because they need social recognition or friendship experience a decrease in PWB. When considering personality traits the results indicated that for individuals with neurotic tendencies Physical Exercise Goals might significantly decrease PWB.

An additional aim of Study 1 was to investigate the longitudinal effect of Hope on Goal Attainment and Eudaimonic Well-Being. The objective was to determine if Goal Attainment took place and to what extent future-orientation had an influence on attainment. Results showed Hope did not significantly predict Goal Attainment. This

then is a contradictory finding to that of Curry et al. (1997), where it was found that athletes with greater Hope also had greater attainment of their goals. Whereas, Curry et al. (1997) utilised a sample of professional track and field athletes, the current study purposefully utilised a random sample of exercisers from the general population. It is possible that professional athletes have different goals they pursue with different reasons governing their behaviour which might impact their goal attainment. Conversely, individuals with greater Hope experience a greater sense of well-being in the long term. So what could account for the fact that Hope does increase long-term well-being even when goals were not attained? Besides the fact that the pursuit itself or progress made can have a positive impact on well-being (Diener, Suh, Lucas & Smith, 1999; Koester et al. 2002), optimism about the future and the possibility that attainment will take place might also effect PWB (Sharot, 2011). In essence, future-orientation is about the belief that change is possible and that by constantly working towards that change individuals feel they are productively contributing to the ultimate aim. Alternatively, it is also possible that the method used in the determination of Goal Attainment might be a contributing factor. In this study Goal Attainment was determined through participant self-assessment. Although a method used in previous goal setting research, it might have had an impact on results that needs to be negated. The independent, objective determination of goal attainment was retained for further study and additional investigation in Study 2.

With the distinction being made between personality traits and characteristic adaptations (McCrae, 2011), one of the primary aims of this study was to determine if strengths such as Hope or PGI could account for residual variance not accounted for by traits. With previous results indicating that Hope, as oppose to PGI, makes the biggest contribution to PWB and a somewhat smaller contribution to SWB, PGI was

excluded from this analysis. Utilising the Big-Three (Eysenck, 1994) personality traits, results indicated that all three traits (Extraversion, Neuroticism, and Psychoticism), as well as Hope share an underlying factor. Although it is assumed that all characteristic adaptations such as Hope are related to personality traits (McCrae, 2011), it was of interest to determine if Hope could contribute additional variance to the prediction of Hedonic and Eudaimonic Well-Being, after the variance accounted for by the Big-Three had been controlled for. The three personality traits and Hope made only a slight contribution to the prediction of SWB. This supports previous research (DeNeve & Cooper, 1998; Vittersø, 2001) where it was indicated that personality variables make small contributions to indices of SWB and might be overrated as predictors of SWB. Conversely, Extraversion, Neuroticism, and Psychoticism accounted for the majority of the variance in the prediction of PWB. Importantly, Hope also made a substantial contribution. Together the traits and Hope accounted for almost 70% of the variance in PWB. Although it is argued by Eysenck (1991) that the Giant Three traits are in fact situated above the Big-Five on a hierarchal level, it was questioned in this study if the results presented above would be similar if the Big-Five were substituted for the Big-Three. It was acknowledged that Hope might be a facet of Conscientiousness and as such might account for variance in this analysis that would not have been accounted for if Conscientiousness was included in the analysis. Consequently, this hypothesis was proposed for further investigation in Study 2.

5.2.2. Study 2: The Effects of Personality, Future-Orientation, and Goal Setting on Well-Being

Results of Study 1 demonstrated Hope, relative to PGI, to be the stronger predictor of both Hedonic and Eudaimonic Well-Being, however these were only preliminary findings that necessitated replication in order for the findings to be generalised to other populations. As a result, differentiating Hope and PGI in another population and domain was the focus of Study 2 (Chapter 4). Results corroborate findings from Study 1 where it was indicated that Hope's biggest contribution in variance is to PWB, with a smaller contribution to SWB. Also supporting findings from Chapter 3, PGI contributed a small amount of variance to PWB, but none to SWB.

Results from Study 1 indicated Hope to contribute to the prediction of hedonic and eudaimonic well-being even after the variance contributed by the Big-Three personality traits was controlled for. Although Eysenck (1991) argues for the redundancy of the Big-Five, it was posited that Hope and PGI might be related to personality traits not accounted for by the Big-Three. According to Eysenck (1991) Agreeableness and Conscientiousness are facets of Psychoticism and as such do not need to be measured independently. However, based on the findings in Study 1, Hope contributed to the prediction of PWB and SWB in addition to the contribution made by Psychoticism, Extraversion, and Neuroticism. As a result, the Big-Five personality traits were the focus of Study 2. It was proposed that Hope and PGI might have similarities to Conscientiousness, Openness, or Agreeableness. Initial results indicate that PGI has a positive moderate relationship with Agreeableness, while Hope has a positive relationship with Openness. The absence of a relationship between Hope and Agreeableness, as well as, PGI and Openness are further

support of the exclusivity of the aforementioned relationships. Upon closer examination it was also found that the Hope sub-scales Agency and Pathways, share respective underlying relationships with Conscientiousness and Openness. These identified relationships correspond to trait theory where similarities between the future-oriented constructs and elements of traits become apparent. That is, similarities between Conscientiousness and Agency (Caspi, Roberts, and Shiner, 2005), Openness and Pathways (John & Srivastava 1999), and Agreeableness and PGI (Crick et al., 2001; Graziano & Eisenberg 1997) can theoretically be justified.

A second consideration in this study related to the supposition that Hope and PGI might not account for independent variance not already accounted for by these additional traits. Results indicated that Hope contributed unique variance in the prediction of PWB, but not SWB. Individuals with higher levels of Conscientiousness and Extraversion will experience enhanced PWB, while individuals with higher Neuroticism will experience a decrease in PWB. Even considering Conscientiousness and Openness, increases in Hope could be associated with increases in PWB. However, Hope's effect was twofold, in that it also acted as a suppressor in the relationship between Agreeableness and PWB. So, not even considering the direct relationship between Hope and PWB, if Hope were to be excluded the total effect between Agreeableness and PWB might appear not significant when in fact it is (MacKinnon, Krull, & Lockwood, 2000). Together the Big-Five and Hope accounted for 80% of the variance in PWB.

Similar to PWB findings, results further indicated that individuals who tend to lean towards Extraversion will experience an increase in SWB, while those with higher levels of Neuroticism will experience a decrease in SWB, supporting previous findings (Steel, Schmidt, & Shultz, 2008). A surprising result was the negative,

predictive relationship between Openness and SWB. While previous research (Marrero-Quevedo & Carballeira-Abella, 2011) present contradictory findings, results in the current study support Keyes, Shmotkin, and Ryff's (2002) conclusions that Openness has a negative predictive relationship with SWB. Even though individuals with high Openness levels may be more likely to experience self-fulfilment, they may also negatively evaluate situations inducing negative feelings (McCrae & Costa, 1991). Since the Big-Five accounted for a substantial percentage of the variance in SWB, it left Hope and PGI as non-contributors. This supported findings by Halama and Dedova (2005), and yet expanded upon them. Where Halama and Dedova found Hope not to contribute to Satisfaction with Life, after the Big-Five has been controlled for, the research in this study incorporated a more comprehensive approach to SWB. With SWB measured as a composite score consisting of the Satisfaction with Life, as well as the balance between positive and negative emotions (Forgeard et al., 2011).

A primary aim of Study 2 was to examine the supposition that individuals' increased future-orientation will result in increased goal attainment. Characteristic adaptations such as Hope and PGI are based on the belief that individuals with increased levels of Hope and PGI are more effective at setting goals and the achievement of those goals. In effect, they can more readily recognize areas in their lives that are in need of change and make the required the changes (Snyder, 2002; Robitschek et al., 2012). Fundamentally, for goal pursuit to be judged a success there needs to be attainment. The finding in Study 1 where it was indicated that Hope is not predictive of Goal Attainment in an exercise domain, brought into question the fundamental belief of future-orientation. Two possible explanations were purposed. The first suggested the domain in which the research was conducted

might have had an influence. The second supposed that the self-assessment method used during the determination of Goal Attainment might have been a contributing factor. The design of Study 2 took both of these possible limitations into consideration. Firstly, Study 2 was conducted in a tertiary educational setting which allowed for the setting of academic goals. Secondly, goal attainment was determined through independent, quantitative verification. This then expands upon the self-assessment method used during Study 1.

Results indicate Hope did not make a contribution to participants' prediction of expected grades. This contrasts with previous research (Curry et al., 1997; Snyder et al., 2002) where it was suggested that Hope is a positive predictor of academic success. Conversely, students who experience greater PGI had greater expectations about the grades they wanted to achieve, even after controlling for personality traits. It is possible that an explanation for these opposing findings lies with the skill set that constitute PGI and provide students with greater confidence when setting academic goals (Robitschek et al., 2012; Weigold, Porfeli, Weigold, 2013). This however is a question for future research. The findings further indicated that students' PGI had no influence on their final grade. When considering student motivation results indicated that those students with greater PGI were more likely to have a Mastery-Approach motivation. That is to say, students with higher PGI were motivated to a greater extent by a desire to master the content of their course and not by outperforming their peers (Elliot & McGregor, 2001). Contrary to expectations (Poropat, 2009) Conscientiousness was not the most likely trait to correlate with predicted grades. The trait that contributed variance in the prediction of expected grades in Study 2 was Openness. Viewed by many (Caspi, Roberts, Shiner, 2005; McCrae & Costa 1997b) as the trait that is least understood, Openness has been described by some

(De Raad & Schouwenburg, 1996) as the ideal trait for students to have due to the intelligence, resourcefulness, and foresight associated with it (De Raad & Schouwenburg, 1996; DeYoung, Grazioplene, & Peterson, 2012). It is thus not surprising that Openness, out of the five traits, were the only trait that was positively associated with the achieved grades. So, those students who have greater levels of Openness are more likely to have higher achieved grades.

Even though students were asked to indicate their expected academic grades the aim of this study was never to examine the achieved grades of the students, which is more indicative of intelligence than attainment (Strenze, 2007). Instead the aim of Study 2 was to determine if any of the future-orientated constructs or the Big-Five traits are linked to attainment. However, the results from Study 2 are not promising. Neither PGI nor the Big-Five traits were able to predict the attainment of academic goals. Considering that only 32% of the participants attained their academic goals, this finding is not surprising. Although PGI and Openness were able to successfully predict the Expected Grades neither had a significant effect on the attainment of the grades. So, individuals with increased levels of Openness tend to have higher predicted grades and achieved grades than those with lower Openness levels. Nonetheless, Openness does not guarantee attainment of the initial grades just that they will be higher than the grades of individuals with low Openness. As a possible explanation it could be argued that the performance motivation with which individuals high in PGI approach their goals could influence whether attainment takes place or not. This however does not seem likely, since results show none of the achievement goal motivations to be associated with the achieved grades or goal attainment. That being said, it needs to be considered that individuals with greater PGI tend to have a Mastery-Approach motivation towards their goals. They are not

motivated by high grades, instead they place greater value on gaining a deeper understanding of the course work (Elliot & McGregor, 2001). Individuals with high PGI might want to attain higher grades but they seem unable to turn these expectations into reality. This disconnect between expectation and attainment needs to be the subject of future research.

5.3. IMPLICATIONS OF MAIN FINDINGS

The findings revealed in this thesis have implications for those who conduct research and practice within a positive psychology framework. These will be discussed in three subsequent sections. The first will review the independence of personality traits and the characteristic adaptations of interest in this thesis. The second section will focus on differentiating the two future-oriented strengths, Hope and PGI. In the final section there will be a discussion on goal setting and the feasibility of attainment.

5.3.1. Independence of Personality Traits

The aim of psychological science is to understand, predict, and control behaviour, cognitions, and emotions (McCrae, 2011). With dispositional traits reflecting broad dimensions of personality that usually account for consistencies in thoughts, behaviour, and emotions (McAdams & Olson, 2010), it has been argued that traits are most effective in the understanding and prediction of these characteristics and not the control thereof. This is due to the stability of traits and their resistance to change (Terracciano et al., 2006). A shift in focus was required where researchers' needed to attempt to identify and utilise ways in which change can be induced to personality characteristics in such a way as to be beneficial to the

individual. Acquired characteristic adaptations, otherwise defined as human strengths, were proposed as an addendum to dispositional traits (McAdams & Olson, 2010; McCrae, 2011). These characteristics place emphasis on the motivational aspects that govern human life (Deci & Ryan, 1991) and are perceived to be more susceptible to interventions that aim to change thoughts, behaviour, and emotions (McCrae, 2011). According to McAdams and Pals (2006) characteristic adaptations refer to motives, roles, habits, attitudes, goals, relationships, strivings, and values. Instead of or in conjunction with traits there should be a focus on identifying, developing, and enhancing human strengths. Since the aim of this thesis was the investigation of one of the biggest concerns within psychology, the enhancement of positive mental health (Seligman & Csikszentmihalyi, 2000), future-orientation was proposed as a possible characteristic adaptation that might increase goal attainment which in turn might enhance mental health. The two future-orientated constructs utilised as measures of future-thinking were Hope and PGI.

Although proposed as characteristics that could act as alternatives to traits, it was deemed important in this thesis to compare Hope and PGI to dispositional traits. These characteristic adaptations need to be distinguishable from traits, to ensure that they are not just replications of already existing traits. Results from Study 1 and 2 provided clear evidence for the supposition that Hope and PGI as human strengths are related to, yet distinct from traits. Findings from Study 2 clearly indicated PGI's association with Agreeableness, while the two sub-scales of Hope, Agency and Pathways, were respectively related to Conscientiousness and Openness. Both Study 1 and 2 provided clear evidence for Hope's distinctiveness from traits in its prediction of Hedonic and Eudaimonic Well-Being. Similarly, PGI was seen to make a unique contribution to the prediction of academic grades in Study 2. From this it

can be concluded that adaptive characteristics such as Hope and PGI make unique contributions to outcome measures, such as hedonic and eudaimonic well-being, and can thus be utilised as alternatives or in conjunction with traits.

5.3.2. Distinctiveness between Hope and PGI

It has been established that differing levels of future-thinking directly relate to varying levels of well-being. For instance, research has shown hopeful thinking to be a predictor of more adaptive functioning and better adjustment (Irving et al., 1990; Onwuegbuzie & Snyder, 2000; Snyder et al., 1991; Stanto et al., 2000; Westburg, 2001). Hope enables individuals to approach problems with an aim to succeed, due to its positive correlates to perception of control, optimism, positive outcome expectancies, perception of problem solving abilities, engagement in positive activities, and self-esteem (Snyder et al., 1991). PGI has positive relationships with and is predictive of social, emotional, and psychological well-being, the use of adaptive coping strategies, and vocational development, while also be negatively related to depression, distress, anxiety, and the use of maladaptive coping strategies (Hardin, Weigold, Robitschek, & Nixon, 2007; Robitschek & Cook, 1999; Weigold & Robitschek, 2011).

Prior research conducted by Shorey et al. (2007) concluded that Hope and PGI are related yet distinct constructs. Shorey et al. went on to argue that PGI, relative to Hope, is more suitable for research where goals relate to “domains that impact personal identity” (p. 1925). Although finding that PGI did not make an independent, direct contribution to the prediction of well-being indicators Shorey et al. were still hesitant to draw any decisive conclusions about PGI and its viability as a future-oriented construct. Results presented in this thesis provide clear evidence that

brings PGI's viability into question. Studies 1 and 2 indicated Hope to be by far the stronger predictor of both Hedonic and Eudaimonic Well-Being. Having said this in Study 2, PGI emerged as the only future-oriented construct that significantly predicted academic grades. However, this was the only instance in which PGI, as opposed to Hope, was identified as the variable of choice. With the aim of being more unambiguous than Shorey et al. (2007) in the interpretation of the results, the following can be concluded. Throughout this thesis Hope consistently emerged as the stronger, most comprehensive variable. It would thus be more prudent to use Hope in research where mental health is the focus.

An additional finding that consistently emerged in this thesis is Hope's, rather than PGI's, ability to predict PWB more effectively than SWB. This might be due to the difference between Eudaimonic and Hedonic Well-Being. Hedonic Well-Being is used as an umbrella term to incorporate life satisfaction as well as the balance between positive and negative mood (Forgeard et al., 2011). Conversely, it is argued by eudaimonic well-being researchers that life is about more than the presence of positive mood and the absence of negative mood. From an eudaimonic perspective well-being is about living life in such a way as to be true to one's self and one's potential (Ryff, 1995; Waterman, 1993). Since Hope is about moving from an undesired state to a state that is deemed to be more satisfactory, there is a constant engagement in self-development and self-actualisation. So, Hope closely resembles the aim to flourish. According to Ryff (1995) this would involve:

> "positive evaluations of oneself and one's past life (Self-Acceptance), a sense of continued growth and development as a person (Personal Growth), the belief that one's life is

> purposeful and meaningful (Purpose in Life), the possession of quality relations with others (Positive Relations With Others), the capacity to manage effectively one's life and surrounding world (Environmental Mastery), and a sense of self-determination (Autonomy; p.100)."

It has also been suggested that setting goals is an integral part of future-thinking. For example, in the Hope theory, Snyder (2002) proposes goals and the ability to articulate one's goals as its foundation. Similarly, there is a need for goal directed energy (agency) and plans to meet the goals (pathways). As the cognitive anchors of hopeful thinking (Snyder, 1995) goals are the experiences, objects, or outcomes that individuals desire or imagine. Similarly, Robitschek et al. (2012) proposes that individuals have the ability to judge their current situations as either satisfactory or unsatisfactory based on self-evaluation or external feedback. Upon the realisation that personal or situational characteristics are unsatisfactory individuals can act in one of two ways. They can choose to ignore that which has been deemed unsatisfactory and adjust accordingly. Conversely, they can choose to act and plan for ways that would align their current situation with the desired state or situation. The conscious and intentional process proposed by Robitschek et al. (2012) includes a readiness for change, engagement in planfullness and intentional behaviour, while utilising resources. Although Robitschek and colleagues (2012) do not mention goal setting and the pursuit of goals as a behavioural regulation strategy that individuals can follow, it has been questioned in this thesis how else Robitschek would perceive individuals to make these changes while utilising these proposed skills.

5.3.3. Setting of Goals

Both studies presented in this thesis focused on how strengths such as future-thinking and goal pursuit influence goal attainment and positive mental health and how this would differ from the influence traits might have. Research indicates that individuals consider the future to varying degrees (Nurmi, 2005; Seginer, 2009), set goals to varying degrees (Austin & Vancouver, 1996; Baumeister & Heatherton, 1996), and exhibit different levels of well-being (Kahneman et al., 1999; Waterman, 1993). Previous research examined Hope, PGI, Goals, and Hedonic and Eudaimonic Well-Being separately, with minimal attention focused on finding ways in which these constructs interact.

Results from Study 1 indicated Psychological Exercise Goals to positively influence PWB, while Social Exercise Goals negatively influence Goals. Similarly, those individuals with high PGI who set Psychological Exercise Goals also experience an increase in PWB. In Study 2 it was reported that individuals' Hope levels do not influence the grades they expected to achieve. Greater PGI did however result in greater expectations about the grades they wanted to achieve, but had no influence on the Final Grade or Goal Attainment. Based on these results from Study 1 and 2 individuals with high Hope tend set internal goals. Comparing, Psychological Exercise Goals in Study 1 with Predicted Grade in Study 2 a clear distinction can be made between internal and external goals. Those individuals with greater levels of PGI indicated external goals when asked to provide their expected grades. Individuals with high Hope in Study 1 participate in exercise for the enjoyment the activity provides, not for the gain of rewards that can be separated from the activity such as, socialising with friends. Goal setting research highlights the various effects different goal types can have on mental health. Extrinsic goals

relative to intrinsic goals are negatively related to indicators of well-being such as self-esteem and life satisfaction, but positively related to indicators of anxiety and depression (Sheldon & Kasser, 2008; Vansteenkiste et al., 2008). Additionally, extrinsic pursuits influence individuals negatively in that it can be linked to a decrease in persistence when exercising (Sebire, Standage, & Vansteenkiste, 2009) and poor academic performance (Tabachnick, Miller, & Relyea, 2008; Vansteenkiste, Lens, & Deci, 2006). When considering how personality traits might influence the setting of goals the results from Study 1 indicated that for individuals with a tendency towards Neuroticism setting Physical Exercise Goals will significantly decrease their PWB. Study 2 results show Openness to be the only trait that influences the Expected Grade and the Final Grade.

Although well-being was not longitudinally measured in Study 2, certain assumptions can be made based on Study 1 results and previous research. Although the benefits of internal goals have been highlighted above it is very difficult to set such goal in an academic setting. Tertiary institutions expect students to perform at a certain level for them to be perceived as successful. This performance is measured in terms of module grades. Furthermore, students themselves have very little say in how course grades are assessed and the activities that they have to take part in. All this limits the students' autonomy and decreases their well-being (Vansteenkiste et al., 2008; Vansteenkiste, Lens, & Deci, 2006). Goals are important due to its effect on performance. They have the ability to mobilise effort, direct attention, prolong persistence, and contribute to the development of new learning strategies (Locke & Latham, 1985; 1990). It is thus important to find ways in which individuals can set goals that are self-concordant and would provide them with a sense of autonomy (Sheldon & Houser-Marko, 2001).

5.3.4. Feasibility of Attainment

The ultimate aim of setting a goal is the attainment of said goal. Findings in Study 1 and 2 indicates that neither the future-oriented constructs nor personality traits contribute to the attainment of goals. In both studies various methods of goal attainment were utilised in order to eliminate the possible effect method selection might have. Based on the findings it can be concluded that individuals may have a desire to attain goals in their various life domains, but there is an obstacle to actual attainment. This obstacle might be related to individuals' inability to set realistic goals that are within their means to reach.

What can additionally be concluded based on the results from Study 1 is that future-orientation and traits have an effect on Hedonic and Eudaimonic Well-Being that is unrelated to the attainment of goals. It is possible that the effect of traits can be explained by the stability associated with the heritability of traits. Hope by definition focuses on changing current circumstances into desired circumstances with the intention of increasing perceived well-being. So how then does Hope positively influence an individual's mental health without the achievement of the desired circumstances? Although the ultimate aim has not yet been achieved, the pursuit itself or progress made can also have a positive impact. When progress is made individuals experience a positive emotional payoff, conversely failure results in negative emotions (Diener et al., 1999; Koester et al. 2002). In has been suggested by Sheldon and Houser-Marko (2001) that the positive impact of progress on well-being might have a positive effect on the construction of more self-concordant goals. The increase in goal setting also elevates the chance of goal attainment which in turn again increases well-being. So it might be that during the goal setting process

attainment is not necessarily the aim, instead the path chosen becomes the goal. The activities and experiences associated with the goal becomes the aim.

5.4. RECOMMENDATIONS FOR FUTURE RESEARCH

The current study contributed to existing literature by comparing Hope and PGI, differentiating contributions made by these constructs from that of dispositional traits, considering the effect Hope, PGI, and traits might have on goal setting and attainment, as well as the effect they might have on mental health. Still, a number of unanswered questions emerged based on the method utilised and the interpretation of the data. Perhaps existing literature on future-orientation, dispositional traits, goal pursuit, and mental health can benefit from additional research proposed in the subsequent section.

The longitudinal design of Study 1 allowed for four months between the setting of the original exercise goal and the attainment of the goal. It is possible that this short timeframe might have had an effect on attainment. Future research should thus aim to allow for a more extended period of time so as to provide participants with sufficient time to attain their goal. Furthermore, the design of Study 2 did not allow for the longitudinal assessment of Eudaimonic and Hedonic Well-Being. This limits the conclusions that can be drawn concerning the impact of goal attainment or non-attainment on mental health.

In both studies presented in this thesis Hope and PGI were consistently used as single facet indicators. That is, except for factor analysis none of the other statistical analysis in this thesis considered Hope or PGI's sub-scales. Future research should consider how these sub-scales might individually affect outcomes specifically, PWB and SWB. Considering that Hope and PGI were related to the

high-order traits of Conscientiousness, Openness, and Agreeableness all of which consists of facets that were not individually measured in this thesis future research should consider the possibility that Hope and PGI might already be accounted for by these facets.

With the findings in this thesis indicating that goal attainment was not feasible for most participants the importance of attainment for individuals' well-being has to be questioned. Based on the results it can be assumed that individuals who are constantly working towards the attainment of goals have higher PWB levels that those who are not. So can it then be assumed that it is not the attainment itself that are contributing to well-being, but rather the process or progress? However, if attainment is considered by individuals to be all important research needs to focus on interventions that would make attainment more viable. Furthermore, future research should also take into consideration that goal attainment or lack thereof is only one of many possible incidents that might influence overall well-being.

Although in this thesis there is consistency across domains regarding well-being findings, it can be argued that exercise or academic goals are not essential for positive mental health. Being such a dynamic construct, well-being will never be determined by success or the lack there of in a singular domain. For instance students' lives consist of more than just their academic pursuits. They also have family, friend, finances, and romantic partners to consider. However, during their academic career the goals they set for themselves will most definitely have an impact on their well-being. More specifically the perceived success or failure in goal pursuit will influence their hedonic and eudaimonic well-being. That being said, future research should take this into consideration.

5.5. CONCLUDING REMARKS

The research presented in this thesis aimed to contribute to positive psychology literature in a number of ways. First, the thesis differentiated Hope and PGI, demonstrating consistently that Hope accounts for more variance in Hedonic and Eudaimonic Well-Being. An increased level of Hope was found to be positively associated with Psychological Exercise Goals, and negative associated with Social Exercise Goals. Although Hope does not contribute to the attainment of goals, it was found to contribute to longitudinal Eudaimonic Well-Being. Increased levels of Hope did not contribute to expected academic grades, final academic grades, attainment of grades. Conversely, PGI consistently contributed to Hedonic and Eudaimonic Well-Being to a lesser extent. Although only significantly associated with Psychological Exercise Goals, greater levels of PGI were associated with an increase in the grades expected by students. However, PGI could not successfully predict achieved grades or attainment of academic goals. Based on these findings it was concluded that, when compared to PGI, Hope is the more comprehensive future-oriented construct.

Additionally, the research in this thesis also indicated that characteristic adaptations such as Hope and PGI are related yet distinct from dispositional traits. Initial results indicated Hope and PGI to share an underlying structure with the Big-Three personality traits as defined by Eysenck. Subsequent research that incorporated the Big-Five personality traits demonstrated Hope and PGI to be respectively related to Conscientiousness and Agreeableness. Closer examination of the Hope sub-scales showed Agency (goal-directed energy) to be associated with Conscientiousness, and Pathways (plans for goal attainment) to be associated with Openness. While neurotic individuals who set Physical Exercise Goals will

experience a decrease in their Eudaimonic Well-Being, the results indicate that the exercise goals of Extraverts and individual with higher levels of Psychoticism are less likely to have an influence on their Eudaimonic Well-Being. Conversely, students with increased levels of Openness aim to achieve higher academic grade and do in fact achieve as much.

In conclusion, both studies in this thesis highlighted the importance of future-orientation in the prediction of Hedonic and Eudaimonic Well-Being and the utilisation of goal setting. The research also showcased the distinction between dispositional traits and adaptive characteristics, as well as, the extent to which the latter makes independent contributions that can be differentiated from the contributions made by personality traits.

APPENDICES

Appendix A: Preliminary Analysis Results for Study 1

Outliers, Collinearity, and the Internal Consistency of measures

Table 1. *The Outlier Labelling Rule Results for the Hope, PGI, Three Exercise Factors, Psychoticism, Extraversion, and Neuroticism measures*

	Cut-Off Point		Variable Scores		
Variable	**Lower**	**Upper**	**Lowest Score**	**Highest Score**	**No Outliers**
Hope	13.20	83.60	24.00	64.00	✓
PGI	0.23	7.03	1.36	5.42	✓
Psychological Exercise Goals	-0.01	5.56	.65	4.21	✓
Social Exercise Goals	-2.24	5.76	.13	4.00	✓
Physical Exercise Goals	0.08	3.05	.00	4.00	✓
PWB	1.01	7.49	3.00	5.71	✓
SWB	-4.00	50.00	2.00	44.00	✓
Psychoticism	-4.60	11.60	.00	12.00	✓
Extraversion	-5.00	22.00	.00	12.00	✓
Neuroticism	-10.0	22.20	.00	12.00	✓

Notes: N 264. *g* = 2.2; ✓ = All the measures that do not contain outliers.

Table 2. *VIF and Tolerance results for the Hope, PGI, Three Exercise Factors, Psychoticism, Extraversion, and Neuroticism measures predicting PWB*

	Tolerance	VIF	Acceptable VIF & Tolerance
Hope	.52	1.92	✓
PGI	.55	1.82	✓
Psychological Exercise Goals	.58	1.72	✓
Social Exercise Goals	.66	1.52	✓
Physical Exercise Goals	.85	1.17	✓
Psychoticism	.89	1.12	✓
Extraversion	.87	1.14	✓
Neuroticism	.81	1.23	✓

Notes: N 264. ✓ = All the measures that have acceptable Tolerance and VIF.

Table 3. *Internal Consistency Reliability Scores: Hope, PGI, PWB, SWB, Psychological, Social, and Physical Exercise Factors, and Psychoticism, Extraversion, and Neuroticism (N = 264)*

Internal Consistency		
Scales & Sub-Scales	**α First Assessment**	**α Third Assessment**
Hope	**.87**	-
Pathways	.76	-
Agency	.83	-
PGI	**.94**	-
Readiness for Change	.71	-
Planfulness	.85	-
Using Resources	.77	-
Intentional Behaviour	.88	-
Personality (EPQ-R)		-
Psychoticism	.86	-
Neuroticism	.79	-
Extraversion	.84	-
The Exercise Motivations Inventory - 2 (EMI-2)	**.95**	-
Enjoyment	.89	-
Revitalisation	.78	-
Strength and Endurance	.90	-
Stress Management	.92	-
Competition	.94	-
Social Recognition	.85	-

Challenge	.84	-
Affiliation	.87	-
Health Pressure	.67	-
Weight Management	.86	-
Psychological Well-Being		**.96**
Autonomy	.88	.84
Purpose in Life	.83	.80
Positive Relations with Others	.86	.81
Personal Growth	.80	.77
Environmental Mastery	.89	.88
Self-Acceptance	.90	.89
Positive & Negative Experience (SPANE)	**.62**	**.36**
Positive Feelings (SPANE-P)	.89	.93
Negative Feelings (SPANE-N)	.84	.89
Satisfaction with Life Scale	**.85**	**.93**

Descriptive Statistics for Study 1

Table 4. *Descriptive Statistics including Measures of Central Tendency, 95% Confidence Intervals, Minimum, Maximum, Skewness, and Kurtosis related to the first of the longitudinal waves.*

Descriptive Statistics

	Measures of Central Tendency					
	Mean	**Std. Dev.**	**Min**	**Max**	**Skewness**	**Kurtosis**
Age	26.06	10.56	16.00	71.00	1.89	3.74
Length of Exercise	69.01	102.26	.00	720.00	2.46	8.17
Hope	48.21	9.43	24.00	64.00	-.72	.03
Agency	24.26	5.09	6.00	32.00	-.87	.54
Pathways	24.25	4.99	7.00	39.00	-.53	.42
PGI	3.58	.91	1.36	5.42	-.28	-.52
Readiness for Change	3.67	1.00	.52	5.75	-.56	-02
Planfulness	3.45	.99	.20	5.25	-56	.22
Using Resources	2.99	1.19	.00	5.33	-30	-.22
Intentional Behaviour	4.22	1.39	.75	6.67	-.13	-.54
The Exercise Motivations Inventory-2 (EMI-2)						
Psychological Exercise Factor	2.76	.79	.65	4.21	-.57	-.11
Social Exercise Factor	1.83	.92	.13	4.00	.128	-.66

Physical Exercise Factor	1.84	.80	.00	4.00	.19	-.05
PWB	4.31	.67	3.00	5.71	.01	-1.13
Autonomy	4.19	.83	1.22	6.00	-.12	.14
Environmental Mastery	4.11	.81	1.78	6.00	-.01	-.50
Personal Growth	4.57	.82	2.00	6.00	-.33	-.70
Positive Relations With Others	4.37	.91	1.00	6.00	-.14	-.39
Purpose in Life	4.41	.88	2.22	6.00	-.18	-.86
Self-Acceptance	4.16	.98	0.00	6.00	-.63	.94
SWB	22.41	8.48	2.00	44.00	-.14	.17
Satisfaction with Life Scale	23.03	6.52	4	37	-.69	-.12
Positive Feelings (SPANE-P)	18.70	3.71	0	30	.17	3.01
Negative Feelings (SPANE-N)	18.15	4.00	0	30	-1.07	3.14
Affect Balance (SPANE-B)	.46	5.40	-10	22	1.74	3.48
Personality (EPQ-R)						
Psychoticism	3.27	2.16	0.00	12.00	.64	.47
Neuroticism	8.25	3.24	0.00	12.00	-.71	-.48
Extraversion	6.23	3.55	0.00	12.00	-.06	-1.17

Notes: N = 264.

Complete Correlation Matrix

Table 5. *Zero-order correlations for the variables related to the initial assessment*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Hope	1													
2. PGI	**.63****	1												
3. Psychological Goals	**.36****	**.36****	1											
4. Social Goals	**.16****	.08	**.53****	1										
5. Physical Goals	.11	.12	**.34****	**.28****	1									
6. PWB	**.70****	**.55****	**.24****	-.01	-.12	1								
7. SWB	**.33****	**.20****	**.14***	**.13***	.02	**.35****	1							
8. Psychoticism	**-.21****	**-.25****	-.09	.11	-.01	**-.37****	-.06	1						
9. Extraversion	**.27****	**.26****	**.19****	**.18****	.03	**.34****	**.14***	**-.17****	1					
10. Neuroticism	**-.39****	**-.30****	**-.12***	.04	.09	**-.59****	**-.21****	**.13***	**-.14***	1				
11. Number of Words	**.20****	**.20****	**.23****	.10	-.05	**.26****	.09	-.12	.07	**-.22****	1			
12. Number of Objects	.12	**.20****	**.23****	**.16***	-.02	**.18****	.06	-.08	.04	**-.17****	**.54****	1		
13. Relative Changes	.04	.10	.09	.10	-.10	.09	.04	-.11	.04	-.03	**.20****	**.54****	1	
14. Absolute Changes	**.19****	**.19****	**.20****	.09	**.16***	.11	.03	-.03	.08	-.10	**.41****	**.22****	**-.44****	1

Notes: N 264. *p=.05, **p= .01.

Table 6. *Zero-order correlations for the variables related to the third longitudinal wave*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Hope	1														
2. PGI	**.58****	1													
3. Psychological Goals	**.37****	**.29***	1												
4. Social Goals	.19	.01	.05	1											
5. Physical Goals	-.16	-.12	-.01	-.17	1										
6. Number of Words	.10	.19	.13	.08	-.14	1									
7. Number of Objects	.02	.17	.12	.17	-.14	**.77****	1								
8. Relative Changes	-.11	.11	.07	.15	-.10	**.45****	**.67****	1							
9. Absolute Changes	.13	.13	.22	**-.29***	.24	**.40****	.24	**-.25***	1						
10. Psychoticism	.02	-.02	.07	**.24***	-.04	-.17	-.16	-.06	.02	1					
11. Extraversion	**.32****	**.36****	**.22***	.15	-.18	**.27***	**.26***	.16	.07	-.16	1				
12. Neuroticism	**-.48****	**-.43****	-.21	-.11	**.29****	**-.34****	**-.26***	-.07	-.08	.18	**-.27***	1			
13. Goal Attainment	**.29***	.09	.24	.18	-.25	.03	.10	-.05	.01	-.17	.12	**-.31***	1		
14. PWB	**.49****	**.55****	.14	.20	**-.32****	**.30***	.21	.03	.05	-.15	**.27***	**-.74****	**.33****	1	
15. SWB	**.42****	**.37****	**.26***	16	**-.38****	.25	.19	.02	-.03	-.17	.16	**-.67****	**.50****	**.76****	1

Notes: N 64. *p=.05, **p= .01.

Appendix B: Preliminary Analysis Results for Study 2

Outliers, Collinearity, and the Internal consistency of measures

Table 7. *The Outlier Labelling Rule Results for Hope, PGI, four motivation orientations, and the Big-Five Personality Traits*

	Cut-Off Point		Variable Scores		
Variable	**Lower**	**Upper**	**Lowest Score**	**Highest Score**	**No Outliers**
Hope	26.4	69.6	27.00	60.00	✓
PGI	0.94	5.85	1.40	4.60	✓
Mastery-Approach	1.47	6.87	2.33	5.00	✓
Mastery-Avoidance	1.13	6.53	1.67	5.00	✓
Performance-Approach	0.07	7.26	1.33	5.00	✓
Performance-Avoidance	1.13	6.53	1.33	5.00	✓
PWB	2.1	6.69	2.52	5.63	✓
SWB	-12.4	79.4	-7.00	54.00	✓
Extraversion	10.2	58.8	12.00	47.00	✓
Agreeableness	18.6	56.4	19.00	48.00	✓
Conscientiousness	6.5	60.5	15.00	48.00	✓
Neuroticism	-6.6	63.6	14.00	50.00	✓
Intellect-Openness	17.6	55.4	19.00	49.00	✓

Notes: N 117. *g* = 2.2; ✓ = All the measures that do not contain outliers.

Table 8. *VIF and Tolerance results for Hope, PGI, four motivation orientations, and the Big-Five Personality Traits predicting PWB*

	Tolerance	VIF	Acceptable VIF & Tolerance
Hope	.50	2.01	✓
PGI	.62	1.62	✓
Mastery-Approach	.75	1.33	✓
Mastery-Avoidance	.85	1.17	✓
Performance-Approach	.33	3.01	✓
Performance-Avoidance	.36	2.80	✓
Extraversion	.60	1.68	✓
Agreeableness	.71	1.41	✓
Conscientiousness	.63	1.59	✓
Neuroticism	.64	1.57	✓
Intellect-Openness	.84	1.19	✓

Notes: N 117. ✓ = All the measures that have acceptable Tolerance and VIF.

Table 9. *Internal Consistency Reliability Scores: Hope, PGI, PWB, SWB, Four Motivation Orientations, and the Big-Five Personality Traits (N = 117)*

Internal Consistency	
Scales & Sub-Scales	**α**
Hope	**.76**
Pathways	.72
Agency	.67
PGI	**.90**
Readiness for Change	.75
Planfulness	.72
Using Resources	.49
Intentional Behaviour	.67
Big-Five Personality Traits	**.67**
Extraversion	.87
Agreeableness	.78
Conscientiousness	.85
Neuroticism	.89
Intellect-Openness	.64
Motivation Orientation	**.81**
Mastery-Approach	.61
Mastery-Avoidance	.71
Performance-Approach	.80
Performance-Avoidance	.88
Psychological Well-Being	**.94**
Autonomy	.80

Purpose in Life	.76
Positive Relations with Others	.86
Personal Growth	.73
Environmental Mastery	.81
Self-Acceptance	.88
Positive & Negative Experience (SPANE)	**.18**
Positive Feelings (SPANE-P)	.89
Negative Feelings (SPANE-N)	.81
Satisfaction with Life Scale	**.86**

Descriptive Statistics for Study 2

Table 10. *Descriptive Statistics including Measures of Central Tendency, Range, Skewness, and Kurtosis*

Descriptive Statistics								
	Measures of Central Tendency		95% Confidence Interval					
	Mean	**Std. Dev.**	**Lower**	**Upper**	**Min**	**Max**	**Skewness**	**Kurtosis**
Age	19.80	3.33	19.19	20.41	17	40	3.47	14.65
Expected Grade	3.56	.42	3.48	3.64	2.58	4.53	.083	-.566
Final Grade	3.08	.73	2.95	3.22	.65	4.67	-.337	.551
Hope	47.96	6.12	46.84	49.08	.27	.60	-.753	.727
Agency	23.84	3.57	23.18	24.49	14	30	-.652	-.137
Pathways	24.12	3.65	23.45	24.79	10	31	-.862	1.456
PGI	3.40	.63	3.29	3.52	1.40	4.60	-.796	.710
Readiness for Change	3.71	.73	3.58	3.85	.50	5.00	-1.08	2.64
Planfulness	3.35	.78	3.21	3.50	.80	4.80	-6.96	.706
Using Resources	2.84	.92	2.68	3.01	.00	4.67	-.686	.516

Intentional Behaviour	3.67	.86	3.52	3.83	1.50	5.00	-.413	-.631
Motivation Orientation								
Mastery-Approach	4.12	.61	4.01	4.23	2.33	5.00	-.593	.095
Mastery-Avoidance	3.75	.83	3.60	3.90	1.67	5.00	-.364	-.310
Performance-Approach	3.64	.83	3.50	3.80	1.33	5.00	-.469	-.144
Performance-Avoidance	3.80	.97	3.62	3.97	1.33	5.00	-.902	.322
PWB	4.37	.59	4.26	4.47	2.52	5.63	-.638	.393
Autonomy	4.17	.79	4.02	4.31	2.11	5.78	-.136	-.611
Environmental Mastery	4.17	.78	4.03	4.31	1.89	5.78	-.415	.098
Personal Growth	4.68	.66	4.56	4.80	3.00	6.00	-.468	-.239
Positive Relations with Others	4.71	.89	4.55	4.89	2.33	6.00	-.666	-.143
Purpose in Life	4.38	.70	4.25	4.51	2.78	5.67	-.319	-.793
Self-Acceptance	4.09	.94	3.91	4.26	1.22	5.67	-.693	.092
SWB	31.16	13.17	28.75	33.57	-7	54	-.768	.106
Satisfaction with Life Scale	23.47	6.34	22.31	24.63	7	33	-.713	-.164
Positive Feelings	22.96	4.42	22.15	23.77	9	30	-.870	.581

(SPANE-P)								
Negative Feelings (SPANE-N)	15.26	4.65	14.41	16.12	7	26	.370	-.459
Affect Balance (SPANE-B)	7.69	8.23	6.18	9.20	-16	21	-.762	.151
Big-Five Personality Traits								
Extraversion	34.39	7.49	33.02	35.76	12	47	-.725	.248
Agreeableness	37.50	5.71	36.45	38.54	19	48	-.836	.989
Conscientiousness	33.42	7.04	32.13	34.71	15	48	-.379	-.297
Neuroticism	28.56	8.83	26.94	30.17	14	50	.423	-.591
Intellect-Openness	36.14	5.45	35.14	37.14	19	49	-.160	.315

Complete Correlation Matrix

Table 11. *Zero-order correlations for the variables in this study.*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Hope	1														
2. PGI	**.46****	1													
3. Mastery-Approach	.15	**.28****	1												
4. Mastery-Avoidance	.05	.10	**.32****	1											
5. Performance-Approach	.06	.10	**.24****	.13	1										
6. Performance-Avoidance	-.01	-.02	.17	.15	**.78****	1									
7. PWB	**.65****	**.44****	.08	.04	.07	-.05	1								
8. SWB	**.40****	**.24****	-.01	-.04	.11	-.04	**.74****	1							
9. Extraversion	**.48****	**.29****	-.02	.002	.16	.01	**.68****	**.47****	1						
10. Agreeableness	.12	**.39****	**.20***	**.19***	.04	.02	**.41****	**.33****	**.24****	1					
11. Conscientiousness	**.44****	**.42****	**.30****	.15	**.18***	.05	**.48****	**.34****	.17	.25**	1				
12. Neuroticism	**-.37****	**-.31****	-.02	.04	-.07	.07	**-.73****	**-.74****	**-.49****	**-.34****	-.29	1			
13. Intellect-Openness	**.24****	.06	.06	-.06	-.09	-.04	.06	**-.20***	.08	.02	-.10	.07	1		
14. Expected Grade	.13	**.27****	**.26****	**.22***	**.21***	.14	.02	-.10	.04	.12	.05	.07	**.34****	1	
15. Final Grade	.11	.03	.17	.33	**.23***	.18	-.004	.008	-.03	.01	.05	.09	**.22***	**.41****	1

Notes: N 117. *p=.05, **p= .01.

Table 12. *Zero-order correlations between all the variables and Goal Attainment.*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PGI	1												
2. Hope	**.46****	1											
3. Mastery-Approach	**.28****	.15	1										
4. Mastery-Avoidance	.10	.05	**.31****	1									
5. Performance-Approach	.10	.06	**.24****	.13	1								
6. Performance-Avoidance	-02	-.01	.17	.15	**.78****	1							
7. Extraversion	**.29****	**.48****	-.02	.002	.16	.01	1						
8. Agreeableness	**.39****	.12	**.20***	**.19***	.04	.02	**.24****	1					
9. Conscientiousness	**.42****	**.44****	**.30****	.15	**.18***	.05	.17	**.25****	1				
10. Neuroticism	**-.31****	**-.37****	-.02	.04	-.07	.07	**-.49****	**-.34****	**-.29****	1			
11. Intellect-Openness	.06	**.24****	.06	-.06	-.09	-.04	.08	.02	-.10	.07	1		
12. Expected Grade	**.27****	**.13**	**.26****	**.22***	**.21***	.14	.04	.12	**.05**	.07	**.34****	1	
13. Goal Attainment	.06	.04	.09	.14	-.06	-.12	.09	.08	-.03	-.07	.09	**.19***	1

Notes: N 117. *p=.05, **p= .01.

Appendix C: Study 1

Initial Assessment Questionnaire

The publicity poster on page 356 titled "Goal Setting Factors that Influence Attainment" has been redacted due to copyright restrictions.

School of Social and Health Sciences

Participant Information Sheet

Title of Project: Goal setting, attainment and the effect on happiness

Invitation to take part
My name is Catherine Engelbrecht and I am a postgraduate researcher in Psychology at the University of Abertay, Dundee. As part of my research I am conducting a study about the goals people set and how these may impact on their happiness. I would thus like to invite you to participate in this study.

Purpose of the study
The aim of this study is to measure your attitude towards goal setting in an exercise environment and how it might affect your happiness and general well-being. Exercise is considered a goal orientated activity, one in which individuals participate for specific reasons. These exercise goals and reasons associated with the goals are the basis for the research study.

How it works
You will be requested to complete questionnaires, on topics such as motivation, goal setting, personality and your feelings about the future. At the end of the first evaluation you will be presented with the option to take part in two more assessments.

The second assessment will take place two months after you completed the first evaluation. The researcher will contact you via the contact details you provide. If at that time you still want to participate, you will be asked to complete a short evaluative questionnaire.

The last evaluation will take place a further two after the second. You will be asked to complete the same questionnaires you completed during the first evaluation.

Please note, if at any time you feel you do not want to participate in the evaluations, you are free to withdraw from the study.

Results of this study
After the last session you will be debriefed in person or via the address you provided and any remaining questions you might have about the study will be answered. If at the end of the study you wish to receive details with regards to findings, you can contact the researcher. A document will be send to you containing the reasoning for this study, the main findings, the researcher's conclusions and recommendations (according to academic literature) on how to gain greater exercise participation.

What will I be asked to do?
If you volunteer to participate in this study, you will be requested to do the following:

- Complete an informed consent form and a demographics form. The consent form has to be read carefully and signed. You will be asked to complete five questionnaires in your own time and send/give them back to the researcher. The first questionnaire will request biographical information. The Exercise Motives Inventory will evaluate your motivation for exercise. The Future Scale will measure your feelings about the future. The Well-Being and ERQ-R scales will respectively measure your feeling of well-being and some components of your personality.

- The researcher will contact you approximately two months later and request that you complete a short evaluative questionnaire. This will provide the researcher with information about your exercise program for the preceding two months. Four months after the first evaluation you will be requested to complete the questionnaires from the first assessment again.

- You will be contacted via the preferred address that you volunteered on the first occasion. If for whatever reason you do not want to participate any further you can withdraw from the study without any explanation. If you do not respond around the time we expect you to, we will contact you with a reminder.

Are there any risks?
There are no known risks for you in this experiment.

This research study only requires you to complete questionnaires and does not require you to participate in any specific exercise related activities. You should only participate in those activities you would have chosen to do regardless of your participation in this study.

Time commitment
The completion of the questionnaires should not take long and can be done at your own pace.

Participation and withdrawal

You can choose whether or not to participate in this study. If you volunteer to be part of the study, you may withdraw at any time without explanation. You may also refuse to answer any questions you do not wish to.

If at any stage during the research you feel that you no longer want to take part in the study you can contact the researcher and request to be withdrawn. At such time the researcher will provide you with the following choices:

1). You can request not to be contacted again, however the data you have submitted can still be used in the research or
2). You can request not to be contacted again, and that all your data be removed from the study and destroyed.

Confidentiality

The first questionnaire will request a postal address, e-mail address or telephone number. This information will be used by the researcher to contact you during the four months, to request the completion of the questionnaires. Your contact details will only be available to the researcher and will be kept secure in a locked cabinet in the University of Abertay. Under no circumstances will your contact details be made public.

In order to link the questionnaire results from the different assessments, a unique identification number will be allocated to you. Your name will thus not be linked to any questionnaire results. At the end of the research project your contact details will be destroyed.

Further Information about this project

If you require further information about this study you can contact the researcher (Catherine Engelbrecht: 1004357@abertay.ac.uk) or the supervisor for this study (Professor. Derek Carson: d.carson@abertay.ac.uk; Telephone: 01382 308584 or Professor. Vera Kempe: v.kempe@abertay.ac.uk**;** Telephone: 01382 308586).

THE SCHOOL OF SOCIAL AND HEALTH SCIENCES RESEARCH ETHICS COMMITTEE HAS REVIEWED AND APPROVED THIS RESEARCH STUDY.

School of Social and Health Sciences

Informed Consent Form

Title of Project: Goal setting, attainment and the effect on happiness

By signing below you are indicating that you have read and understood the Participant Information Sheet and that you are willing to participate in this research study. You are giving permission for the researcher to (Please tick the appropriate box using a ✓):

- Use the data from the questionnaires for research purposes. ☐

- Contact me on the two subsequent evaluations, via the contact details provided. ☐

....

Participant's signature **Date**

Personal Contact Information

As this research will be conducted on three occasions you will be contacted by the researcher using the address you prefer. Your contact details will only be available to the researcher, will be kept secure in a locked filing cabinet and under no circumstances will your contact detail be made public. The contact details provided here will be destroyed after the completion of the study. When contacted by the researcher and you do not want to participate any further you can withdraw from the study without explanation.

Contact details in order to award the shopping voucher

As this questionnaire is linked to a draw for a £50, £25 and £10 shopping vouchers, the contact details provided here will be used to contact you if you emerge as a winner.

Name & Surname

.....

Mailing Address

.....

.....

.....

.....

Town.....

County.....

Postal Code.....

E-mail address.....

Telephone/ mobile Number.....

Biographical Information

Gender

Male	
Female	

Age.....

Can you indicate how long you have been exercising (e.g. in years or months if less than a year)

Regular Exercise is any planned physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.).

……

Indicate the type of activity/activities you participate in and how many times on average you participate in these activities (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, yoga, etc; Please attach extra sheet if necessary).

Activities	Times Per Week
1.	
2.	
3.	
4.	
5.	
6.	

What social, fitness and health goals would you like to work on during the next four months?

You may or may not have any goals, indicate the most appropriate answer below.

Goal#1:
I want to …….....

……

Goal#2:
I want to.....

……...

Goal#3:
I want to …….....

……

I do not have goals ……

If one of your goals is weight loss can you indicate your current weight (in Kg)?

……

How much weight would you like to lose (in Kg)?

……

The Future Scale

Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

Definitely False	*Mostly False*	*Somewhat False*	*Slightly False*	*Slightly True*	*Somewhat True*	*Mostly True*	*Definitely True*
1	2	3	4	5	6	7	8

____ 1. I can think of many ways to get out of a jam.

____ 2. I energetically pursue these goals.

____ 3. I feel tired most of the time.

____ 4. There are lots of ways around any problem.

____ 5. I am easily downed in an argument.

____ 6. I can think of many ways to get the things in life that are important to me.

____ 7. I worry about my health.

____ 8. Even when others get discouraged, I know I can find a way to solve the problem.

____ 9. My past experiences have prepared me well for my future.

____ 10. I've been pretty successful in life.

____ 11. I usually find myself worrying about something.

____ 12. I meet the goals that I have set for myself.

Exercise Motives Inventory

Never	Seldom	Occasionally	Often	Repeatedly
0	1	2	3	4

Personally, I exercise (or might exercise) …

(Please circle appropriate answer for each statement)

1	To stay slim	0	1	2	3	4
2	Because it makes me feel good	0	1	2	3	4
3	To show my worth to others	0	1	2	3	4
4	To give me space to think	0	1	2	3	4
5	To build up my strength	0	1	2	3	4
6	Because I enjoy the feeling of exerting myself	0	1	2	3	4
7	To spend time with friends	0	1	2	3	4
8	Because my doctor advised me to exercise	0	1	2	3	4
9	Because I like trying to win in physical activities	0	1	2	3	4
10	To give me goals to work towards	0	1	2	3	4
11	To lose weight	0	1	2	3	4
12	Because I find exercise invigorating	0	1	2	3	4
13	To compare my abilities with other peoples’	0	1	2	3	4
14	Because it helps to reduce tension	0	1	2	3	4
15	To increase my endurance	0	1	2	3	4
16	Because I find exercising satisfying in and of itself	0	1	2	3	4
17	To enjoy the social aspects of exercising	0	1	2	3	4
18	To help prevent an illness that runs in my family	0	1	2	3	4
19	Because I enjoy competing	0	1	2	3	4
20	To give me personal challenges to face	0	1	2	3	4

Never	Seldom	Occasionally	Often	Repeatedly
0	1	2	3	4

Personally, I exercise (or might exercise) …

21	To help control my weight	0	1	2	3	4
22	To recharge my batteries	0	1	2	3	4
23	To gain recognition for my accomplishments	0	1	2	3	4
24	To help manage stress	0	1	2	3	4
25	To get stronger	0	1	2	3	4
26	For enjoyment of the experience of exercising	0	1	2	3	4
27	To have fun being active with other people	0	1	2	3	4
29	To help recover from an illness/injury	0	1	2	3	4
29	Because I enjoy physical competition	0	1	2	3	4
30	To develop personal skills	0	1	2	3	4
31	Because exercise helps me to burn calories	0	1	2	3	4
32	To accomplish things that others are incapable of	0	1	2	3	4
33	To release tension	0	1	2	3	4
34	To develop my muscles	0	1	2	3	4
35	Because I feel at my best when exercising	0	1	2	3	4
36	To make new friends	0	1	2	3	4
37	Because I find physical activities fun, especially when competition is involved	0	1	2	3	4
38	To measure myself against personal standards	0	1	2	3	4

Psychological Well-Being

Below are five statements with which you may agree or disagree. Using the 1-7 scale, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree

_____1. In most ways my life is close to my ideal.

_____2. The conditions of my life are excellent.

_____3. I am satisfied with life.

_____4. So far I have gotten the important things I want in life.

_____5. If I could live my life over, I would change almost nothing.

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

1	Most people see me as loving and affectionate.	1	2	3	4	5	6
2	In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
3	I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
4	When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
5	Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

6	I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
7	The demands of everyday life often get me down.	1	2	3	4	5	6
8	I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
9	In general, I feel confident and positive about myself.	1	2	3	4	5	6
10	I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
11	My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
12	I do not fit very well with the people and the community around me.	1	2	3	4	5	6
13	I tend to focus on the present, because the future nearly always brings me problems.	1	2	3	4	5	6
14	I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
15	I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5	6
16	I tend to worry about what other people think of me.	1	2	3	4	5	6
17	I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
18	I don't want to try new ways of doing things - my life is fine the way it is.	1	2	3	4	5	6
19	Being happy with myself is more important to me than having others approve of me.	1	2	3	4	5	6
20	I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
21	I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
22	My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
23	I like most aspects of my personality.	1	2	3	4	5	6
24	I don't have many people who want to listen when I need to talk.	1	2	3	4	5	6

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

25	I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
26	When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
27	I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
28	I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
29	I generally do a good job of taking care of my personal finances and affairs.	1	2	3	4	5	6
30	I used to set goals for myself, but that now seems like a waste of time.	1	2	3	4	5	6
31	In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
32	It seems to me that most other people have more friends than I do.	1	2	3	4	5	6
33	I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
34	People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
35	I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
36	I am good at juggling my time so that I can fit everything in that needs to be done.	1	2	3	4	5	6
37	I have a sense that I have developed a lot as a person over time.	1	2	3	4	5	6
38	I am an active person in carrying out the plans I set for myself.	1	2	3	4	5	6
39	I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
40	It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
41	I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
42	Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
43	My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

44	I often change my mind about decisions if my friends or family disagree.	1	2	3	4	5	6
45	For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
46	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
47	I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
48	The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
49	I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
50	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
51	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6
52	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
53	I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
54	There is truth to the saying that you can't teach an old dog new tricks.	1	2	3	4	5	6

Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.

Very Rarely or Never	Rarely	Sometimes	Often	Very Often or Always
1	2	3	4	5

_____Positive	_____Good	_____Angry
_____Afraid	_____Sad	_____Unpleasant
_____Happy	_____Bad	_____Contented
_____Negative	_____Joyful	_____Pleasant

For each statement, please mark how much you agree or disagree with that statement. Use the following scale:

Disagree Strongly	Disagree Somewhat	Disagree a Little	Agree a Little	Agree Somewhat	Agree Strongly
0	1	2	3	4	5

1.	I know when I need to make a specific change in myself.	0	1	2	3	4	5
2.	I actively seek out help when I try to change myself.	0	1	2	3	4	5
3.	I am constantly trying to grow as a person.	0	1	2	3	4	5
4.	I know when it's time to change specific things about myself.	0	1	2	3	4	5
5.	I use resources when I try to grow.	0	1	2	3	4	5
6.	I take every opportunity to grow as it comes up.	0	1	2	3	4	5
7.	I know steps I can take to make intentional changes in myself.	0	1	2	3	4	5
8.	I ask for help when I try to change myself.	0	1	2	3	4	5
9.	I figure out what I need to change about myself.	0	1	2	3	4	5
10.	I know how to make a realistic plan in order to change myself.	0	1	2	3	4	5
11.	When I try to change myself, I make a realistic plan for my personal growth.	0	1	2	3	4	5
12.	I set realistic goals for what I want to change about myself.	0	1	2	3	4	5
13.	I actively work to improve myself.	0	1	2	3	4	5
14.	I look for opportunities to grow as a person.	0	1	2	3	4	5
15.	I know how to set realistic goals to make changes in myself.	0	1	2	3	4	5
16.	I can tell when I am ready to make specific changes in myself.	0	1	2	3	4	5

Eysenck Personality Questionnaire (EPQ-R)

1	Does your mood often go up and down?	Yes	No
2	Do you take much notice of what people think	Yes	No
3	Are you a talkative person?	Yes	No
4	If you say you will do something, do you always keep your promise no matter how inconvenient it might be?	Yes	No
5	Do you ever feel 'just miserable' for no reason?	Yes	No
6	Would being in debt worry you?	Yes	No
7	Are you rather lively?	Yes	No
8	Were you ever greedy by helping yourself to more than your share of anything?	Yes	No
9	Are you an irritable person?	Yes	No
10	Would you take drugs which may have strange or dangerous effects?	Yes	No
11	Do you enjoy meeting new people?	Yes	No
12	Have you ever blamed someone for doing something you knew was really your fault?	Yes	No
13	Are your feeling easily hurt?	Yes	No
14	Do you prefer to go your own way rather than act by the rules?	Yes	No
15	Can you usually let yourself go and enjoy yourself at a lively party?	Yes	No
16	Are all your habits good and desirable ones?	Yes	No
17	Do you often feel 'fed-up'?	Yes	No
18	Do good manners and cleanliness matter much to you?	Yes	No
19	Do you usually take the initiative in making new friends?	Yes	No
20	Have you ever taken anything (even a pin or button) that belonged to someone else?	Yes	No
21	Would you call yourself a nervous person?	Yes	No
22	Do you think marriage is old-fashioned and should be done away with?	Yes	No
23	Can you easily get some life into a rather dull party?	Yes	No

24	Have you ever broken or lost something belonging to someone else?	Yes	No
25	Are you a worrier?	Yes	No
26	Do you enjoy co-operating with others?	Yes	No
27	Do you tend to keep in the background on social occasions?	Yes	No
28	Does it worry you if you know there are mistakes in your work?	Yes	No
29	Have you ever said anything bad or nasty about anyone?	Yes	No
30	Would you call yourself tense or 'highly-stung'?	Yes	No
31	Do you think people spend too much time safeguarding their future with savings and insurances?	Yes	No
32	Do like mixing with people?	Yes	No
33	As a child were you ever cheeky to your parents?	Yes	No
34	Do you worry too long after an embarrassing experience?	Yes	No
35	Do you try not to be rude to people?	Yes	No
36	Do you like plenty of bustle and excitement around you?	Yes	No
37	Have you ever cheated at a game?	Yes	No
38	Do you suffer from 'nerves'?	Yes	No
39	Would you like other people to be afraid of you?	Yes	No
40	Have you ever taken advantage of someone?	Yes	No
41	Are you mostly quiet when you are with other people?	Yes	No
42	Do you often feel lonely?	Yes	No
43	Is it better to follow society's rules than go your own way?	Yes	No
44	Do other people think of you as being very lively?	Yes	No
45	Do you always practice what you preach?	Yes	No
46	Are you often troubled about feelings of guilt?	Yes	No
47	Do you sometimes put off until tomorrow what you ought to do today?	Yes	No
48	Can you get a party going?	Yes	No

Appendix D: Study 1

Second Evaluation Questionnaire

Interim Goal Evaluation

Dear

Thank you, again, for participating in this study and taking the time to answer the following questions. This short questionnaire will only take a few minutes to complete and will provide the researcher with information about any changes you have made to your goals in the last two months.

Q1 How many times in the last two month have you participated in exercise?

…….times in the last two month

I do not know …….

Q2 Two months ago you indicated that your goals were the following:

Goal#1:

You wanted to

Goal#2:

You wanted to

Goal#3:

You wanted to

Q3 Have you made any changes to the above mentioned goals in the last two month?

Yes	
No (Go to Q6)	

Q4 **Can you indicate why you changed your goals.**

I changed my goals because… (Tick the appropriate answers, using a ✓)

- It was too easy ……..
- It was too hard ……..
- I already attained them ……..

Other ……..…….....

Q5 **If your goals have changed, indicate your current health, fitness and social goals that you would like to work on during the next two months.**

You may or may not have any goals, indicate the most appropriate answer below.

Goal#1:
I want to …….....

……

Goal#2:
I want to …….....

……

Goal#3:
I want to …….....

……

I do not have goals ……

Q6 Why **<u>don't</u>** you, or would you not exercise regularly? How often is that a reason for your lack of participation?

		Never	Seldom	Occasionally	Often	Repeatedly
1	Lack of Time	1	2	3	4	5
2	Lack of Energy	1	2	3	4	5
3	Lack of Motivation	1	2	3	4	5
4	Excessive cost	1	2	3	4	5
5	Illness/injury	1	2	3	4	5
6	Lack of facilities nearby	1	2	3	4	5
7	Feeling uncomfortable	1	2	3	4	5
8	Lack of skill	1	2	3	4	5
9	Fear of injury	1	2	3	4	5
10	Lack of safe places	1	2	3	4	5
11	Lack of childcare	1	2	3	4	5
12	Lack of partner	1	2	3	4	5
13	Insufficient programs	1	2	3	4	5
14	Lack of support	1	2	3	4	5
15	Lack of transportation	1	2	3	4	5

Appendix E: Study 1

Third Assessment Questionnaire

Goal Attainment

Q1 **How many times in the last two month have you participated in exercise?**

…….times in the last two month

I do not know …….

Q2 **Two months ago you indicated that your goals were the following:**

Goal#1:
I want to …….....

……

Goal#2:
I want to …….....

……

Goal#3:
I want to …….....

……

Two months ago you indicated that you did not have goals ……

Q3 **Have you made any changes to the above mentioned goals in the last two month?**

Yes	
No (Go to Q5)	

Q4 **Please indicate why you changed your goals** (Please tick the appropriate box
using a ✓):

It was too easy .....
It was too hard ……...
I already attained them ……...

Other ……....

.....

Q5 **Can you indication the progress you made towards attaining your goals:**

I have made considerable progress toward attaining my goals.

Strongly Disagree	Disagree	Neither Agree/ Disagree	Agree	Strongly Agree

I accomplished what I set out to do with my goals.

Strongly Disagree	Disagree	Neither Agree/ Disagree	Agree	Strongly Agree

Appendix F: Study 2

Assessment Questionnaire

The publicity poster on page 379 titled "Personality and Academic Goal setting" has been redacted due to copyright restrictions.

School of Social and Health Sciences

Participant Information Sheet

Title of Project: Goal setting, attainment and the effect on happiness

Invitation to take part

My name is Catherine Engelbrecht and I am a postgraduate researcher in Psychology at the University of Abertay, Dundee. As part of my research I am conducting a study about the academic goals students set and how these may impact on their happiness. I would thus like to invite you to participate in this study.

Purpose of the study

The aim of this study is to measure your attitude towards academic goal pursuit and how it might affect your happiness and general well-being.

How it works

You will be requested to complete questionnaires, on topics such as goal setting, personality and your feelings about the future. You are also requested to provide permission for the supervisors (Prof Derek Carson and Prof Vera Kempe) of this project to access your academic records at the end of the semester to extract your marks for the various modules that you will be asked to nominate. Your marks will be extracted and provided to the researcher in such a way that ***the researcher will not be able to link specific mark to specific students***. This however is voluntary and you do not need to provide permission in order to take part in the study.

What will I be asked to do?

If you volunteer to participate in this study, you will be requested to do the following:

- Carefully read and sign an informed consent form.
- You will be asked to complete six questionnaires in your own time and send/give them back to the researcher. The first will evaluate your academic goals. The Hope and Personal Growth Initiative scale will measure your feelings about the future. The Well-Being and Personality scales will respectively measure your feeling of well-being and some components of your personality.
- If you provide permission for your final semester marks to be accessed, then either Prof Carson or Prof Kempe will access these marks when they become available.

Time commitment

The completion of the questionnaires should take approximately 20 minutes. However there is no time limit for completion so you can take as long as you need.

Participation and withdrawal

You can choose whether or not to participate in this study. If you volunteer to be part of the study, you may withdraw at any time without explanation. You may also refuse to answer any questions you do not want to answer.

Are there any risks?

There are no known risks for you in this experiment.

Confidentiality

When completing the questionnaire booklet your name and student number will be requested. This information will be used by the supervisors to access your academic records. As there are three shopping vouchers attached to this study as an incentive your contact details will also allow the researcher to contact you if you should emerge as a recipient of one of the shopping vouchers. The process that will be followed once you provide your details will be outlined here:

- Upon receiving the questionnaire the researcher will allocate a Unique Identification Number (UIN) to your questionnaire. The UIN will be used to identify your results and as such your name/student number will not be associated with the results.
- This consent form containing your personal details will be separated from the data and store in a locked filling cabinet until the end of the recruitment period.
- At this time the consent forms will be handed to the supervisors (Prof Carson and Prof Kempe) in order for them to access the participants' academic records.
- The supervisors will complete a form that will contain participant UIN's, the codes for the modules they nominated, and the mark they received for each.
- The supervisors will then hand this form to the researcher. However they will keep the consent forms secure and will not hand them back to the researcher. This process will ensure that the researcher cannot link specific students to specific results.

Results of this study

After you completed the questionnaire you will be handed a debrief form providing you with information about the study, answering questions you might have. If there is any question that was not answered by the debrief form, you can direct them to the researcher. If you wish to be informed about the results of the study, you can request that they be forwarded to you on completion of the study.

Further Information about this project

If you require further information about this study you can contact the researcher (Catherine Engelbrecht: 1004357@abertay.ac.uk) or the supervisor for this study (Professor. Derek Carson: d.carson@abertay.ac.uk; Telephone: 01382 308584 or Professor. Vera Kempe: v.kempe@abertay.ac.uk**;** Telephone: 01382 308586).

THE SCHOOL OF SOCIAL AND HEALTH SCIENCES RESEARCH ETHICS COMMITTEE HAS REVIEWED AND APPROVED THIS RESEARCH STUDY.

School of Social and Health Sciences

Informed Consent Form

Title of Project: Goal setting, attainment and the effect on happiness

By signing below you are indicating that you have read and understood the Participant Information Sheet and that you are willing to participate in this research study. You are giving permission for the researcher to (Please tick the appropriate box using a ✓):

- Use the data from the questionnaires for research purposes. ☐
- Contact you should you be one of the recipients of the three shopping vouchers. ☐
- I also provide permission for either Prof Derek Carson or Prof Vera Kempe to access my academic results related to specific modules. ☐

....

Participant's signature **Date**

Personal Contact Information

As part of this research study your final academic results will be required. As such the supervisors of this study (Prof Carson and Prof Kempe) will use the details you provide below to access your academic records to extract specific module results. The supervisors will provide the researcher with an anonymised copy of the results. This way the researcher cannot link specific results to specific students.

After you complete the questionnaire the details you provide below will be separated from the questionnaire and kept secure in a locked filing cabinet. Under no circumstances will your contact detail be made public. The contact details provided here will be destroyed after the completion of the study. Providing these details is completely voluntary and not a requirement for taking part in the study.

Contact details in order to award the shopping voucher

As this questionnaire is linked to an incentive, three shopping voucher (£25, £20 and £15) will be given to three randomly drawn participants. Thus at the end of the study the contact details provided here will be used to contact you if you emerge as a recipient.

Name & Surname.....

Student Number…….

E-mail address…….....
(if different from student e-mail)

Biographical Information

Age …….

Gender

Male	
Female	

What language do you consider to be your first language (native tongue)?

……

What is your nationality?

……...

What academic goals are you working to attain this semester?

Goal#1:
I want to …….....
……

Goal#2:
I want to.....
……...

Goal#3:
I want to …….....
……..

Could you nominate specific, second semester, examinations as well as the *grade* that you want to achieve for each examination? You can choose as many examinations as you want. The University of Abertay's marking system are provided to the right.

Second semester Predicted Module/s Grade

…… ……

…… ……

…… ……

…… ……

…… ……

…… ……

…… ……

University Marking System

A	20	Excellent
	19	
	18	
B	17	Very Good
	16	
	15	
C	14	Good
	13	
	12	
D	11	Satisfactory
	10	
	9	
MF	8	Marginal Fail
	7	
	6	

Personal Growth Initiative Scale

For each statement, please mark how much you agree or disagree with that statement.

Use the following scale:

0 = Disagree Strongly
1 = Disagree Somewhat
2 = Disagree a Little
3 = Agree a Little
4 = Agree Somewhat
5 = Agree Strongly

1	I actively seek out help when I try to change myself.	0	1	2	3	4	5
2	I know how to set realistic goals to make changes in myself.	0	1	2	3	4	5
3	I know when I need to make a specific change in myself.	0	1	2	3	4	5
4	I know when it's time to change specific things about myself.	0	1	2	3	4	5
5	I am constantly trying to grow as a person.	0	1	2	3	4	5
6	I ask for help when I try to change myself.	0	1	2	3	4	5
7	When I try to change myself, I make a realistic plan for my personal growth.	0	1	2	3	4	5
8	I figure out what I need to change about myself.	0	1	2	3	4	5
9	I know steps I can take to make intentional changes in myself.	0	1	2	3	4	5
10	I actively work to improve myself.	0	1	2	3	4	5
11	I use resources when I try to grow.	0	1	2	3	4	5
12	I can tell when I am ready to make specific changes in myself.	0	1	2	3	4	5
13	I take every opportunity to grow as it comes up.	0	1	2	3	4	5
14	I know how to make a realistic plan in order to change myself.	0	1	2	3	4	5
15	I set realistic goals for what I want to change about myself.	0	1	2	3	4	5
16	I look for opportunities to grow as a person.	0	1	2	3	4	5

Achievement Goal Questionnaire

For each statement, please mark how much you agree or disagree with that statement.

Use the following scale:

1 = Strongly Disagree

2 = Slightly Disagree

3 = Neither Agree or Disagree

4 = Slightly Agree

5 = Strongly Agree

1	My aim is completely master the material presented in this class.	1	2	3	4	5
2	I am striving to do well compared to other students.	1	2	3	4	5
3	My goal is to learn as much as possible.	1	2	3	4	5
4	My aim is to perform well relative to other students.	1	2	3	4	5
5	My aim is to avoid learning less than I possibly could.	1	2	3	4	5
6	My goal is to avoid performing poorly compared to others.	1	2	3	4	5
7	I am striving to understand the content as thoroughly as possible.	1	2	3	4	5
8	My goal is to perform better than the other students.	1	2	3	4	5
9	My goal is to avoid learning less than it is possible to learn.	1	2	3	4	5
10	I am striving to avoid performing worse than others.	1	2	3	4	5
11	I am striving to avoid an incomplete understanding of the course material.	1	2	3	4	5
12	My aim is to avoid doing worse than other students.	1	2	3	4	5

The Future Scale

Directions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1	2	3	4	5	6	7	8
Definitely False	*Mostly False*	*Somewhat False*	*Slightly False*	*Slightly True*	*Somewhat True*	*Mostly True*	*Definitely True*

____ 1. I can think of many ways to get out of a jam.

____ 2. I energetically pursue these goals.

____ 3. I feel tired most of the time.

____ 4. There are lots of ways around any problem.

____ 5. I am easily downed in an argument.

____ 6. I can think of many ways to get the things in life that are important to me.

____ 7. I worry about my health.

____ 8. Even when others get discouraged, I know I can find a way to solve the problem.

____ 9. My past experiences have prepared me well for my future.

____ 10. I've been pretty successful in life.

____ 11. I usually find myself worrying about something.

____ 12. I meet the goals that I have set for myself.

Psychological Well-Being

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

1	Most people see me as loving and affectionate.	1	2	3	4	5	6
2	In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
3	I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
4	When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
5	Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
6	I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
7	The demands of everyday life often get me down.	1	2	3	4	5	6
8	I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
9	In general, I feel confident and positive about myself.	1	2	3	4	5	6
10	I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
11	My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
12	I do not fit very well with the people and the community around me.	1	2	3	4	5	6
13	I tend to focus on the present, because the future nearly always brings me problems.	1	2	3	4	5	6
14	I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
15	I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5	6
16	I tend to worry about what other people think of me.	1	2	3	4	5	6

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

17	I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
18	I don't want to try new ways of doing things - my life is fine the way it is.	1	2	3	4	5	6
19	Being happy with myself is more important to me than having others approve of me.	1	2	3	4	5	6
20	I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
21	I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
22	My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
23	I like most aspects of my personality.	1	2	3	4	5	6
24	I don't have many people who want to listen when I need to talk.	1	2	3	4	5	6
25	I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
26	When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
27	I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
28	I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
29	I generally do a good job of taking care of my personal finances and affairs.	1	2	3	4	5	6
30	I used to set goals for myself, but that now seems like a waste of time.	1	2	3	4	5	6
31	In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
32	It seems to me that most other people have more friends than I do.	1	2	3	4	5	6
33	I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
34	People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
35	I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6

Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1	2	3	4	5	6

36	I am good at juggling my time so that I can fit everything in that needs to be done.	1	2	3	4	5	6
37	I have a sense that I have developed a lot as a person over time.	1	2	3	4	5	6
38	I am an active person in carrying out the plans I set for myself.	1	2	3	4	5	6
39	I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
40	It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
41	I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
42	Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
43	My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
44	I often change my mind about decisions if my friends or family disagree.	1	2	3	4	5	6
45	For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
46	I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
47	I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
48	The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
49	I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
50	I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
51	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6
52	I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
53	I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
54	There is truth to the saying that you can't teach an old dog new tricks.	1	2	3	4	5	6

DIRECTIONS: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number in the line preceding that item. Please be open and honest in your responding.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree

_____1. In most ways my life is close to my ideal.

_____2. The conditions of my life are excellent.

_____3. I am satisfied with life.

_____4. So far I have gotten the important things I want in life.

_____5. If I could live my life over, I would change almost nothing.

Please think about what you have been doing and experiencing during the past four weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.

1	2	3	4	5
Very Rarely or Never	Rarely	Sometimes	Often	Very Often or Always

_____Positive
_____Negative
_____Good
_____Bad
_____Pleasant
_____Unpleasant

_____Happy
_____Sad
_____Afraid
_____Joyful
_____Angry
_____Contented

Personality Questionnaire

Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your age. Please read each statement carefully, and then fill in your response that corresponds to the number on the scale.

Response Options

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate/ Accurate	Moderately Accurate	Very Accurate

	Item	**Response**
1	I tend to vote for conservative political candidates.	
2	I have frequent mood swings	
3	I have a vivid imagination	
4	I suspect hidden motives in others.	
5	I am always prepared.	
6	I believe in the importance of art.	
7	I make people feel at ease.	
8	I am the life of the party.	
9	I shirk my duties.	
10	I enjoy hearing new ideas.	
11	I dislike myself	
12	I make plans and stick to them.	
13	I rarely get irritated	
14	I insult people	
15	I would describe my experiences as somewhat dull.	
16	I seldom feel blue	
17	I don't like to draw attention to myself.	
18	I carry out my plans.	
19	I am not interested in abstract ideas.	
20	I have a sharp tongue.	

1	2	3	4	5
Very Inaccurate	Moderately Inaccurate	Neither Inaccurate/ Accurate	Moderately Accurate	Very Accurate

21	I make friends easily	
22	I tend to vote for liberal political candidates.	
23	I know how to captivate people.	
24	I believe that others have good intentions.	
25	I am very pleased with myself.	
26	I do just enough work to get by.	
27	I respect others.	
28	I carry the conversation to a higher level.	
29	I panic easily	
30	I avoid philosophical discussions.	
31	I accept people as they are.	
32	I do not enjoy going to art museums.	
33	I pay attention to details.	
34	I keep in the background.	
35	I feel comfortable with myself.	
36	I waste my time.	
37	I get back at others.	
38	I get chores done right away.	
39	I don't talk a lot.	
40	I am often down in the dumps	
41	I am skilled in handling social situations.	
42	I do not like art.	
43	I often feel blue	
44	I cut others to pieces.	
45	I have little to say	
46	I don't see things through.	
47	I feel comfortable around people	
48	I am not easily bothered by things.	
49	I find it difficult to get down to work.	
50	I have a good word for everyone.	

School of Social and Health Sciences

Participant Debriefing Form

Title of Project: Goal setting, attainment and the effect on happiness

Conducted by Catherine Engelbrecht

Thank you for your participation in this research on goal setting and attainment and how it's affects your well-being.

Goal of this research

This study has two goals: First, to establish whether students who focus on the future, to a greater extend, are more goal orientated than their less future orientated counterparts. Also this study is conducted to determine if future orientated students are more likely to attain their goals.

The study

During this research project, you were asked to complete five questionnaires as well as provide the supervisors (Prof Carson and Prof Kempe) of this study access to your academic results at the end of the semester. The questionnaire results will

allow the researcher to determine the relationship between a person's future orientation and the academic goals he/she sets. The student academic results at the end of the semester will be used to ascertain the degree of goal attainment.

Contact Information

If you have additional questions, you may contact me (Catherine Engelbrecht) at (1004357@abertay.ac.uk). You may also contact the faculty member who supervises this research, (Prof. Derek Carson, d.carson@abertay.ac.uk; Telephone: 01382 308584 or Prof. Vera Kempe: v.kempe@abertay.ac.uk**;** Telephone: 01382 308586).

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